The 50th National Conference on Tuberculosis and Chest Diseases

Organized under the auspices of the Tuberculosis Association of India

GOLDEN JUBILEE YEAR

TUBERCULOSIS ASSOCIATION OF KERALA

Red Cross Road, Trivandrum-695 037.

6 December 1995

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Welcome to Kerala

GOLDEN JUBILEE YEAR

THE 50th NATIONAL CONFERENCE ON TUBERCULOSIS & CHEST DISEASES

TUBERCULOSIS ASSOCIATION OF KERALA

TUBERCULOSIS ASSOCIATION OF INDIA

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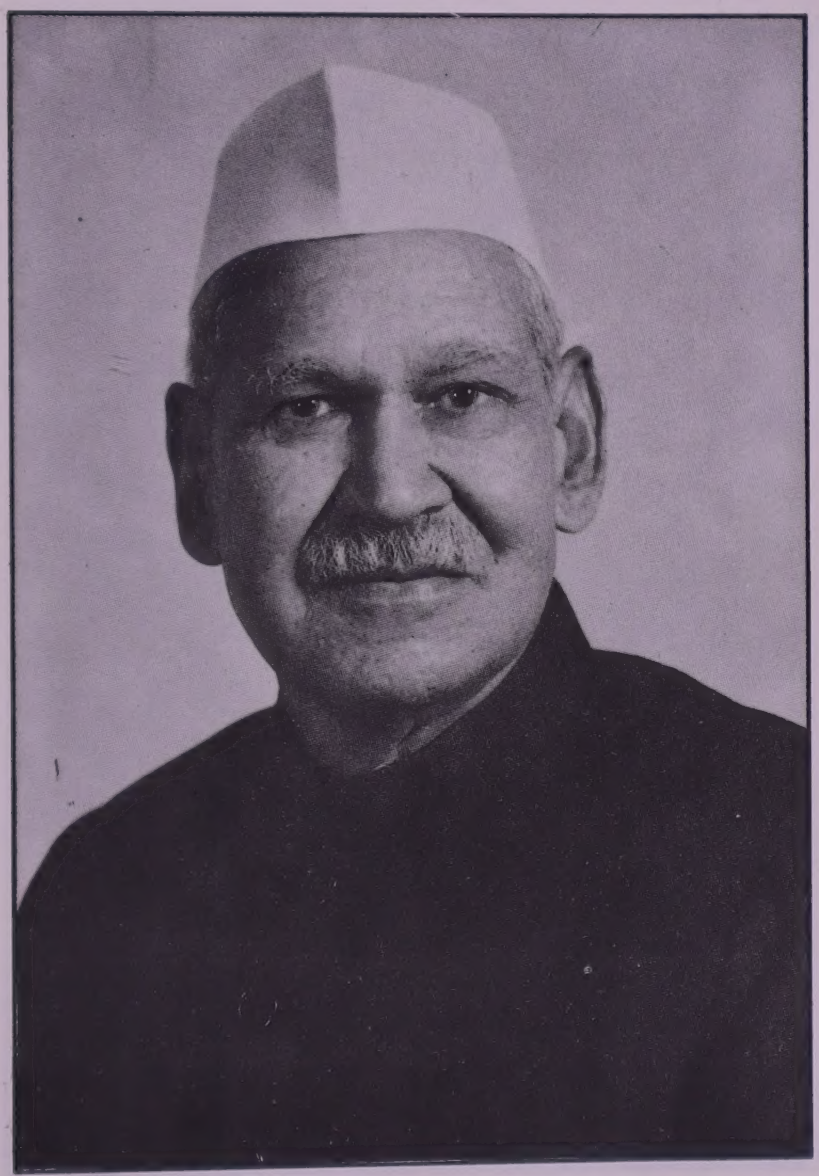
"DEFEAT TB NOW AND FOREVER"

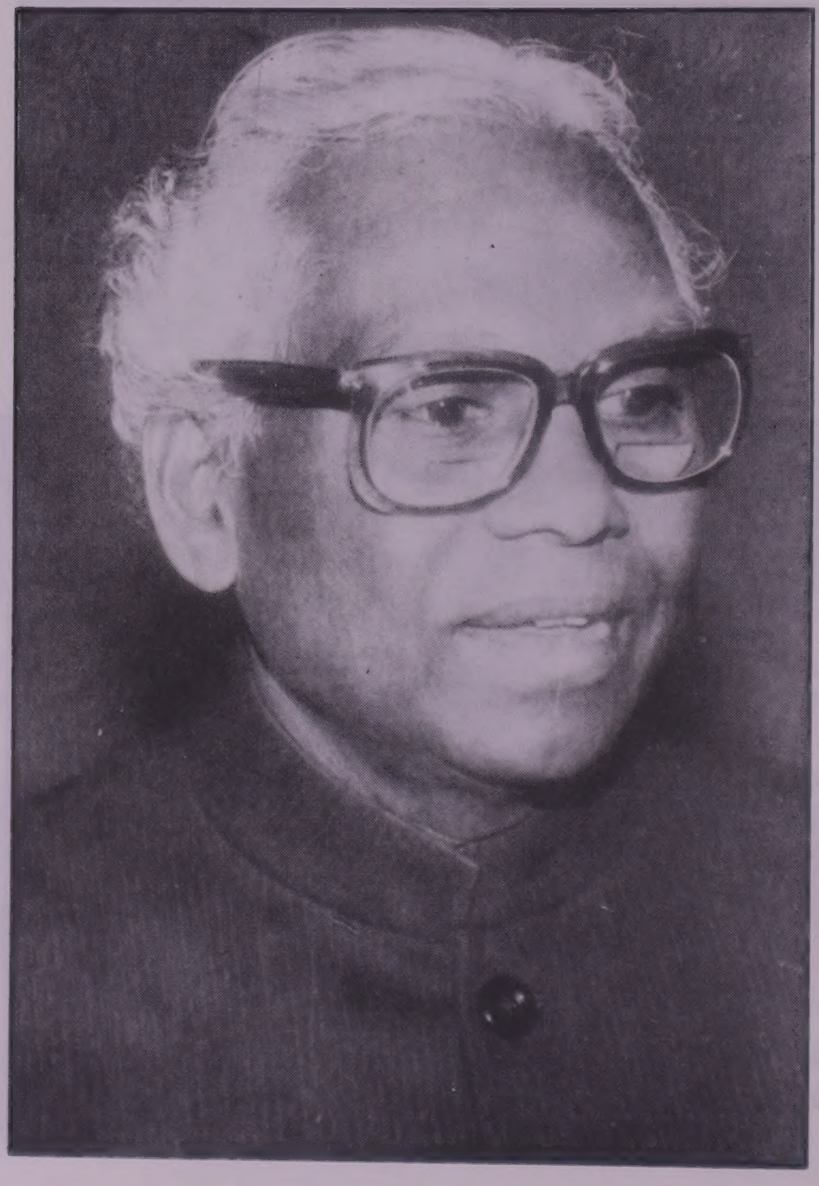
HELP FIGHT TB: BY TB SEALS

His Excellency The President of India



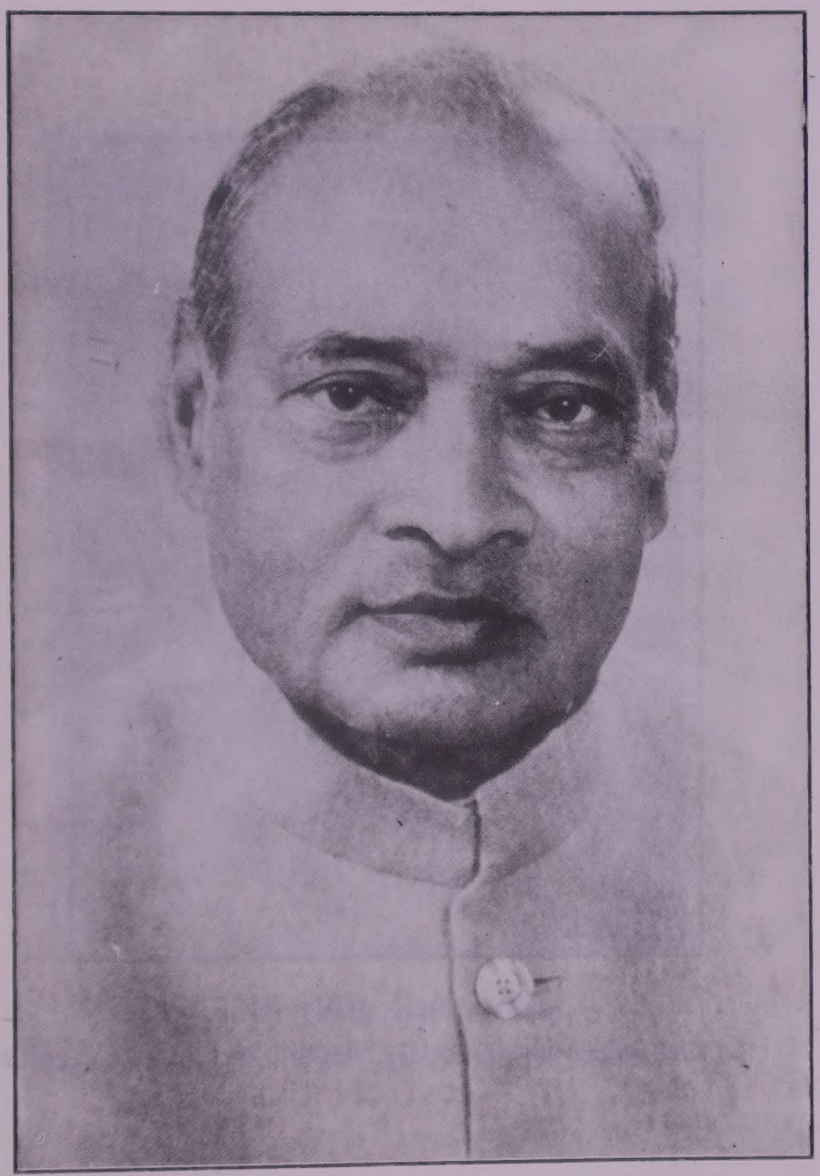
Shri. SHANKER DAYAL SHARMA
PATRON
TUBERCULOSIS ASSOCIATION OF INDIA

His Excellency The Vice President of India

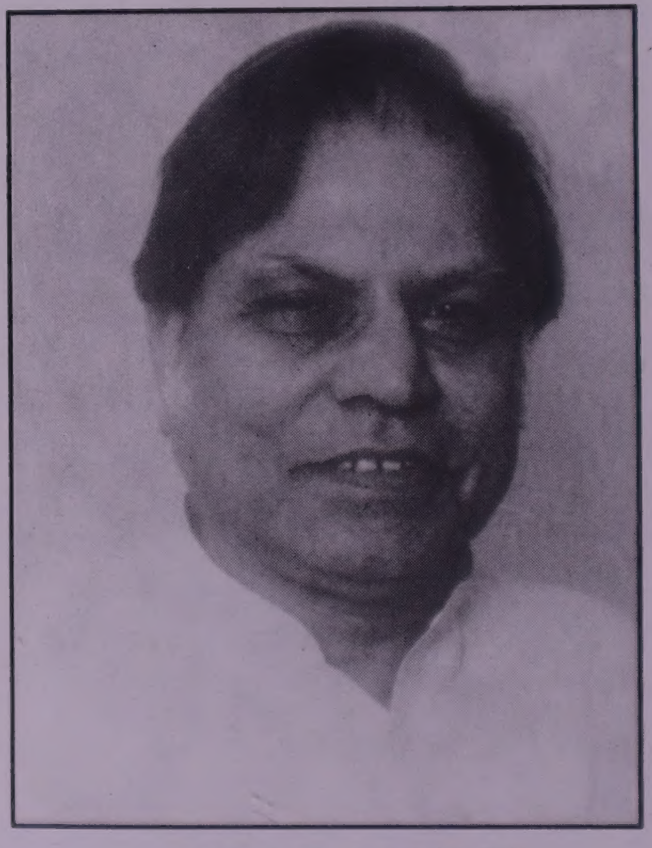


Shri. K.R. NARAYANAN

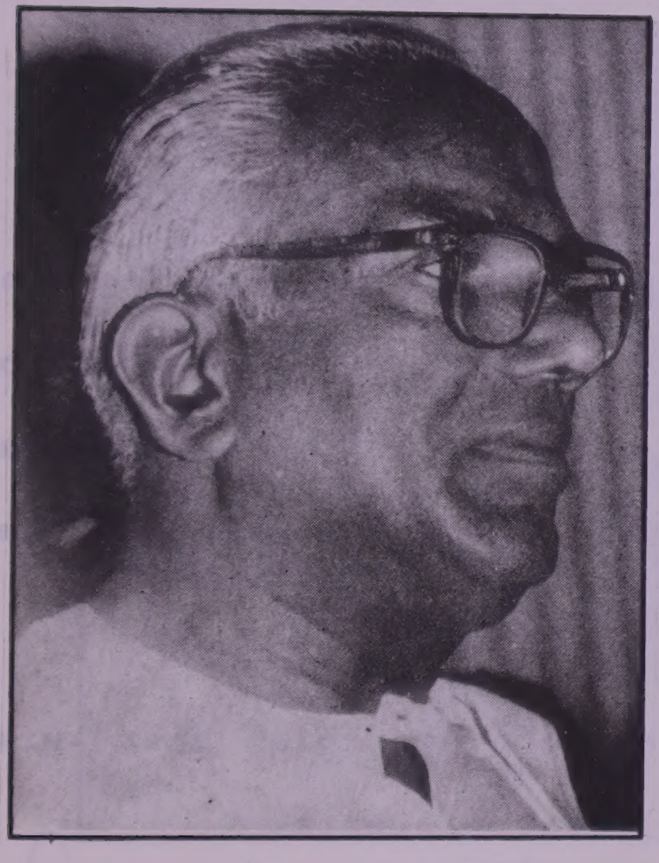
Honourable Prime Minister of India



Shri. P.V. NARASIMHA RAO



Shri. A.R. ANTHULE
Honourable Minister for Health & Family Welfare
Govt. of India



Shri. P. SHIV SHANKAR
His Excellency the Governor of Kerala

सत्यमेव जयते

P. V. R. K. PRASAD
Joint Secretary and
Information Adviser to PM

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नई दिल्ली-110 011
PRIME MINISTER'S OFFIC
NEW DELHI-110011

M E S S A G E

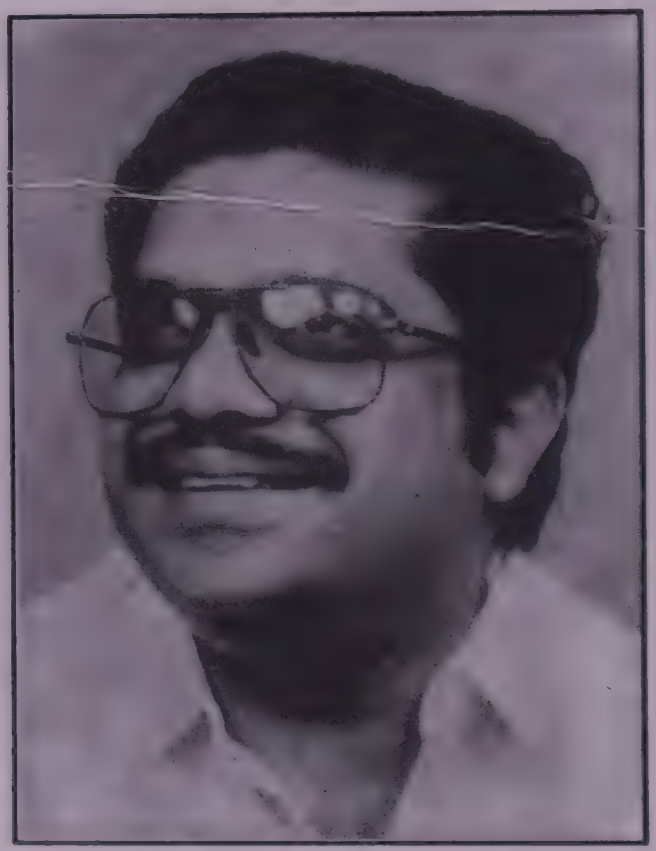
The Prime Minister is happy to learn that the Tuberculosis Association of Kerala is celebrating its golden jubilee year and organising the 50th National Conference on Tuberculosis and Chest Diseases.

He conveys his best wishes for the success of the conference.

(P.V.R.K. Prasad)
Information Adviser to PM

New Delhi
16th October 1995

Shri. A.K. ANTONY
Honourable Chief Minister of Kerala



Shri.V.M. SUDHEERAN

Honourable Minister for Health & Family Welfare - Kerala

Shri.V. SIVAN KUTTY
Worshipful Mayor of
Thiruvananthapuram Corporation

TUBERCULOSIS ASSOCIATION OF INDIA

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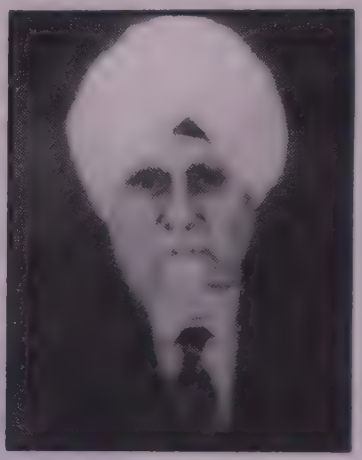

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Emeritus President

Dr. C. Srinivasa Rao
President of the Golden Jubilee
National Conference

Dr. A.K. MUKHERJI
Director General of Health Sciences

Shri. ASHOK SACHDEVA
Secretary General

A KERALA LADY
in typical costume, with Kerala hair-do style, ornaments, and brass lamp.

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Kerala Tuberculosis Association Building, Trivandrum

FOREWORD

It is my pleasant privilege to welcome the distinguished delegates to the Golden Jubilee National Conference on TB & Chest Diseases to be held at Trivandrum for 4 days from 6th December, 1995. Kerala lies at the Southern-most tip of India, and it is gratifying to note that a large number of delegates from all over India are attending the Conference. Distance does not stand in our way, as we have a common cause. I am also happy that Dr. Arata Kochi, WHO Director in charge of the Global TB Programme and Dr. P.R.J. Gangadharan, Director of Mycobacteriology Research in the University of Illinois (USA) are joining us. Let me extend a warm welcome to all of you.

The significant part played by the Tuberculosis Association of India and the State Associations in the implementation of the National Tuberculosis Programme by supplementing the governmental efforts in stepping up activities like health education, case-finding and case-holding are well known. Considering the fact that the disease continues to be a major public health problem in the developing countries, governmental and non-governmental efforts as an integral part of the primary health care is very important. Application of modern methods of diagnosis, treatment and rehabilitation now assume great relevance due to the advent of Aids. I hope this conference will play a great role in making fruitful recommendations to tackle the TB Problem.

This endeavour of ours has been possible due to the generous support of the public in all walks of life. The industry, the trade, members of the profession, members of the various Committees and the general public have been a source of great strength. I wish to thank them all sincerely.

I welcome you all to Kerala and wish you a pleasant stay.

GOPAL.K.PILLAI IAS
President of the Organising Committee
and Secretary to Government
(Health & Family Welfare)

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Complementary Contradictions

ASWATHI THIRUNAL GOURI LAKSHMI BAYI

आकाशात् पतितं तोयं यथा गच्छति सागरं
सर्व देव नमस्कारः केशवं प्रतिगच्छति ॥"

"Like different streams having their sources in different places all mingle their waters in the sea so, Oh! Lord, the different paths men take, varied though they be, all lead to Thee".

So also all seeming diversities have to finally be absorbed into one unified entity.

Diversity is the law of life and nature. To live and let live, to live with variations not just with superficial tolerance, but with sincere acceptance, is necessary for harmony and peace. There is nothing identical, no two fingers of the same hand, no two hands or eyes of the same body are exact replica of each other. This is diversity of the physical self within itself.

So also in the home and society differences like mental and physical retardation, presence or absence of grey cells, beauty or lack of it, variations in economic, educational and work back-

ground all contribute to discrimination and disharmony.

Discrimination between castes, classes and the sexes are so widely projected that they need no further elaboration. This is domestic and social diversity.

What then the diversity resulting in disharmony in political panorama and national arenas! Creeds of intolerance pave the way to cults of hatred. Tragedies of immense proportions have resulted in making the sands of Mother Earth run red with precious human blood. So many are the examples which sign their signatures of shame on the pages of inhumanity. The disharmony arising from diversity between the conqueror and the conquered, the Nazies and the Jews, the Americans and the Red Indians, the White Man and the people of the Dark Continent and coming nearer to home itself, the horror of the partition of India. The lists are endless. Yet in their midst like burning orbs of brilliance, a few exceptions blaze their glory as hope and inspiration for humanity. Sree Rama granted asylum to Vibhishana though he was the brother of Ravana who was filled with hostility towards Him, and with whom Rama was at war. In another historic instance, when King Pururavass was brought bound before Emperor Alexander by his Greek army, he was asked by a triumphant Alexander "Now how would you like to be treated?" With all dignity he replied "Like a King". And Alexander did exactly that. In both cases real greatness triumphed over the extreme contrasts; in true harmony.

Diversity is thus rampant on the canvas of the universe. To harmonise it, the seers of India have long ago declared through the Upanishads "नेह नानास्तिकिंचन" -there is no diversity, only oneness prevails.

What does science say to all this? Science professes that the earth is made up of about hundred elements which have been obtained from crores of elements. Further investigation proved that these hundred elements like oxygen, hydrogen, gold, copper etc. can be reduced to three sub-atomic particles- proton, electron and neutron. More indepth research revealed that these fundamental particles and several others that have been discovered since, are made up of much smaller particles thus reducing the masses and masses of multitudenous matter to a small number of particles, (their actual number being still not defined) which can be transformed into energy. Like religion and philosophy, science also preaches the same sermon of oneness in its own specific language of expression.

This principle of non-differentiation is applied in compromise under set

circumstances illustrating harmonisation of diversities or harmony in diversity. The two Chinas possessing conflicting ideologies uniting to face their common enemy Japan during the Second World War is a classic example to the point. Retracing our steps to the Age of Krishna, another impressive instance offers itself. Duryodhana was bound and held captive by an enraged Gandharva. His cries for help were heard by the five Pandavas residing nearby in the forest. Dharmaputra immediately directed his brothers to go to Duryodhana's help. When they registered protest pointing out that he was their foe, Dharmaputra declared "In face of an enemy of any member of the family, we are not five or six but one." But this type of harmony will also fade away when the need for it no longer exists. As such, our ancients invite us to attain this ideal at more exalted planes of thinking and experience.

Our great land Bharata is rich in variety and abounds in diversity, each geographical area differing from the next in an almost holistic manner. Yet two strands of sameness traverse the entire sub-continent from Kashmir to Kanya Kumari. They are the basic Indianism in us and our ancient sacred texts like the Vedas which are alike all over.

At this juncture it is inevitable that Hinduism, its philosophy and expansive elasticity are cited as best examples of harmonisation of diversities. We adore our panthem of Gods ranging from the Para Brahma to a serpent, a tree or a sacred water source, yet we accept the ultimate Reality as the Supre Brahman - the One without another "सर्वं एकमयम" - All, everything is One, this belief has led to yet another sublime doctrine "वसुधैव कुटुंबकम्" - "this whole universe is one family". How beautiful is this thought!

While admitting to diversities, Hindu philosophic thought relegates them to the lower planes of existence as diversity is inevitable. Ideologies differ from common basics to ultimate abstractions. From fundamentals of human thought and behaviour to spheres dealing with God, creation and life, diversities overflow.

Hinduism does not deny this but absorbs it within its fold. The four Veda Maha Vakyas (containing the very essence of the concerned scriptures) proclaim non-dualism at its zenith - "I am You".

1. Rig Veda - "प्रज्ञानं ब्रह्म"
2. Sama Veda - "अहं ब्रह्मास्मि"
3. Yajur Veda - तत्वमसि"
4. Atharva Veda - "अयमात्मा ब्रह्मः"

They proclaim the unity of the cosmic creation and its configurations in all

complexities of combinations.

Sree Anjaneya's unforgettable words so beautifully illustrate this doctrine of oneness with all differences.

"देह बुध्या तु दासोस्मि
जीवबुध्या त्वदंशाकः
आत्मबुध्या त्वमेवाहं
त्वमेवाहं न संशयः॥"

"If I perceive You Sree Rama through my gross physical self, if I am the body, then I am Your slave (द्वैतम्), as Jeevatma if I know You, then I am a part of You (विशिष्टाद्वैतम्) and if I seek You out through my soul or Atma, then without doubt, I am You Yourself (अद्वैतम्)

Many of us may not even be able to glimpse at such exalted attitudes of spiritual elevation where no diversity exists. Yet, at least in the interests of redefining and remodelling a good society so that by the grace of God we have not just a better tomorrow but also a brighter today, let us attempt to harmonise diversity for the peace and good will of humanity. ■

"लेका : समस्ता : सुखिनो भवन्तु
शान्ति :, शान्ति :, शान्ति :"

(Princess Aswathy Thirunal Gouri Lakshmi Bayi is a member of the Travancore Royal family-a niece of Sri Chithira Thirunal and Sri Utradam Thirunal Maharajas. A graduate in Economics, she is a Poetess, by right, She has to her credit over 150 Poems which have been compiled and published - Thirumulkazcha and Dawn. The latter has been published by Macmillan India Ltd. Her latest book "Sree Padmanabha Swamy" published by the Bharatiya Vidya Bhavan is a comprehensive and authoritative treatise which bears ample testmony to her indepth knowledge about Temple Culture, Indian Philosophy and the history of Travancore (with which is untertwined the history of the Royal family and the Sree Padmanabha Swamy Temple)

The article in this Souvenir must have been inspired by the thinking that delegates from all over India speaking diffent languages, having different food habits and culture all flock together for a common cause, underlying the oneness which is the beauty and strength of Indian Culture-an underlying harmony which can be described as oneness in variety or oneness in the midst of diversity. 'नानात्वे एकत्वम"

Art and Culture - An Evolutionary Approach

Shri. K. JAYAKUMAR

The terms `Art' and `Culture' have often been used rather carelessly, as though they are interchangeable. As a result we are not shocked even when the most vulgar music performance is called a `Cultural programme'. Long term perverted use of a term, unfortunately legitimises the distorted meaning. Culture is a major casualty in this mishap.

Art forms of a people are, no doubt, the finest expressions of their culture, that necessarily implies that culture has expressions other than the art forms. Indeed culture permeates the whole gamut of our lives and controls us with subtle conditioning and commands. It dictates our responses and moulds our values.

When we say that Kerala has a rich and vibrant tradition of folk and classical art forms, we are in fact referring to a culture which nurtured them. If Kathakali and Kudiyattam are highly evolved theatre arts, it was made possible because of a favourable cultural milieu which had fostered them. Our present day compliment to these art forms is in fact a tribute to the acsthetic values of a people who lived in the distant past. It

exemplifies their preferences and concept of excellence. The themes convey their sense of right and wrong and the forms testify their sense of beauty and harmony. The symbols and language developed by our artforms communicate with changing times with different clarity. Responding to the needs of the audience, but within its overall permissible limits, all art forms undergo a silent transition. Society responds to more material impulses as well as value changes. Human will has very little to contribute in these evolutionary processes. To a limitted extent, pioneers and experimentalits may steer the cause of aesthetic evolution and influence the value judgements of the people. Similarly leaders of emience may have some marginal influence on the social history.

When these two evolutionary processes take place at different paces, we come across a situation of mismatch between art form and the society. The art form mught have yielded to social pressures and reached the threshold of its evolutionary possibility. Then it cannot go beyond, doing justice to it itself. In such a situation, society may not be able to understand the symbols and language of that art form. When the communication channel gets completely clogged, an artform becomes irrelvevant to that society. It is then ripe for extinction.

It is in this context that the State's responsibility becomes pronounced. Social changes may be irreverisible. But that will not absolve the State of its responsibility to sustain an artform from extinction. This is exactly where the culture policy of a governmentt becomes relevant. Here the Government, assumes the role of the conservator. If the state takes on the role of a passive spectator, it is failing in its duties not only to the present generation but also to posterity. A modern, civilised government can ill afford such irresponsibility. ■

(Shri. K. Jayakumar IAS is a connoisseur of art, literature and culture - an authority on folk and classical art forms. As District collector of Kozhikode, he was able to make a mark. He held the position of Director of Tourism with great distinction and is currently the Director of Public Instruction, Kerala State. He is an artist, a poet, a person who has composed many songs which have become extremely popular in the Malayalam Cinema - Many of his songs are hits - they are on everybody's lips.

Even in Darkness,
Light Dawns
For those Who Believe

Shri. J. PADMANABHAN

This is not my world nor my home,
I am an alien, a bird in a cage
Brought by the wheel of time
The wheel of birth and death that never stops.

Neither the glitters fascinate me
Nor the pleasures I feel comfortable
For I know I am not this physical being
But a flame trapped in this frame.

I flutter like a bird in my cage
But the bars of the cage are too strong,
Made of my desire, ego and attachment,
They deny me any hope of liberation.

One day I heard a voice in my dream
Do not despair, do not flutter in vain

Know your tormentor, know your bondage
The key of your cage is within your reach.

It is you who have locked yourself in,
You took the fetters and tied yourself up
Do not await a Xavier to liberate you
Search within you to find your strength.

You are not blind, but your eyes are closed
You have not one but many keys
Open thine eyes and see the light
Remove the veil of ignorance covering you.

The law of karma is omnipotent that
Neither the Gods nor demons can escape
Noble deeds and bad deeds tie you to the world
Fetter is a fetter either golden or iron.
Doer gets the result of action, good or bad
Neither can he stop nor escape
Anything that goes up has to come down
No escape from birth and death till they all come back.

To the wheel of Karma you remain tied up
Until all that you send out comes back
Your doership, your ego and your Vasanas
They all tie you up to this wheel for ever.

Learn the art of doing without being the doer,
It neither means escapism nor irresponsibility
But the supreme art of "detached performance of action"
With neither egocentric motives nor desires.

The result of action should neither pain nor please you
For your action is the worship and the result "Prasada"
It is too sacred to see good or bad
Neither have you any control on it.

When you act as the agent, not the doer,
Driven by sense of duty, not by desire
Action becomes "Karma Yoga" and you a "Yogi"
Untouched by "Karmic Results", like lotus on water.

If this path of "Karma yoga" is not easy for you,
There are others that my suit you
Surrender Thyself to Him
Dissolve yourself in the love for Him.

When you realise you are nothing but a puppet
You neither feel proud nor sad of what you do
The great Master plans the stage and your act
Follow this path of "Bhakthi Yoga" to be free from "Karmic Results"

Paths to freedom are many more
Realise the self in you, obscured by ignorance
Realise you are neither this nor that
But the "Nirguna Brahman", embedded in "Gunas".

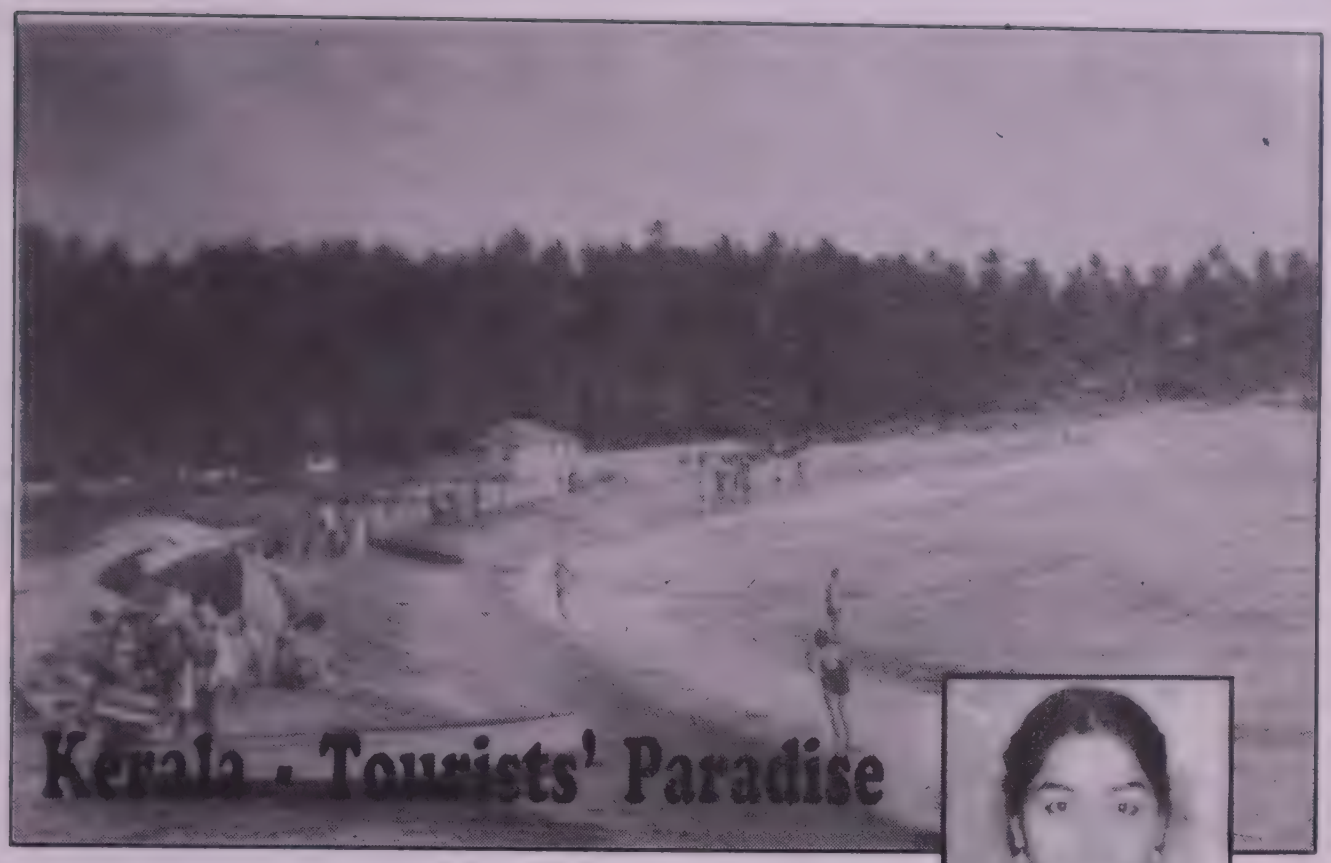
Exhaust your "Vasanas" and liberate this lamp
The flame will flow back to the cosmic source
Never to come back to be trapped,
For without "Vasanas", it has no reason to.

Realise your prison is your own ignorance,
The millstone round your neck is your "Karma"
The fetters that blind you are your "Vasanas"
But you have many ways to liberation.

Liberate yourself through "Karma Yoga", or
Surrender thyself in "Bhakthi Yoga", or
Realise thine true self through "Jnana yoga"
And fly back to your MOTHERLAND ■

(Shri. J. Padmanabhan is a Computer Engineer working as General Manager in a Prominent software, hardware, and technology Firm in Bangalore. He is well-versed in Hindu Philosophy and teaches Bhagavad Gita to interested groups)

Periyar Wild Life Sanctuary - A herd of elephants in natural surroundings.



Kerala - Tourists' Paradise

Smt. DEEPA.S. MONY

I had the good fortune and privilege to travel with a tourist couple from a foreign country - Chicago in the United States, to be precise. They were on a month's holiday in India. They landed in Delhi, saw a bit of Delhi and then Rajasthan (Jaipur), Calcutta, Hyderabad, Mysore and Tamil Nadu and were in the last lap of their journey, having completed also their tour in Kerala and proceeding to Bombay for a couple of days stay, and then leaving to their home country.

I asked "How did you enjoy your holiday"?

"Not bad" came the reply.

They liked Delhi, Jaipur the Pink City was good, and about Hyderabad they relish memories of Salar Jung Museum and Birla Mandir. They were impressed by the Brindavan gardens, Bull temple and Mysore Palace, and about Tamil Nadu, they have something good to say about Mahabalipuram.

"How did you enjoy Kerala" I asked, rather politely. Pat came the reply from the lady, "Kerala-It is Paradise". I was indeed delighted to hear that. Then I ventured to enquire "Why do you say so"?

◆ Landing in Cochin, the Commercial hub of Kerala with a natural harbour and the scenic beauty of

the lake through which they had a boat journey, visited the beautiful Bolghatty Palace, saw the Jewish temple and ancient Churches They also saw some arranged folk arts like Mohini Attam and Kathakali.

- Proceeded to Trichur where they witnessed the Trissur Pooram a fascinating array of tall majestic caparisoned elephants swaying in their rightful grandeur to the rhythm of throbbing drums; the sparkle and thunder of fire-works; they will never forget these in their life time.

- Proceeded to Thekkady through misty tea plantations and saw some of the finest species of wild life like elephants, wild buffalo, deer, monkey. And the enchanting sight of the elephants crossing water course in their natural surroundings - That was a once in a life-time experience.

- Proceeded to Kollam and had a nice boat trip through the enchanting backwaters.

- And in the last lap to Trivandrum, they had a stop over at Varkala, to see the beautiful beach, the samadhi place of Sree Narayana Guru, the social and religious reformer,-now an important place of pilgrimage for devotees as well as social workers.

- And reaching Trivandrum where they stayed for 4 days, they saw every bit of the City which perhaps even the local people would not have seen or noticed.

- They were surprised and impressed to see a Ganapathy temple standing shoulder to shoulder with a mosque in Palayam and that in front of masture Christian Church. They said "Impressed" because they witnessed a small riot somewhere in the north. This sight in Kerala,

indeed, helped them to correct their earlier impression.

- The magnificient Sree Padmanabhaswamy Temple which is a land mark in the City with its 7-storey tower or gopuram, the Napier Museum, a building of great architechural beauty housing a wonderful collection of articles of arts and crafts; the beautiful Ravi Varma pictures in the Sree Chitra Art Gallery, the Zoo housing a large variety of animals snakes, monkeys and birds, Kowdiar Palace the residence of the Maharajas of former Travancore State, the Kanakakunnu Palace, Veli-Aakulam water sports complex, the Kerala University, Medical College Science & Arts Colleges, the Science Museum and Palanetoium and the Agricultural College with beautiful natural surroundings were all worth seeing.

- And last but not least, was Kovalam the internationally renowed beach resort known the world over as the Miami of the East.

– They summed up. Nowhere can one see such a variety in natural beauty, like.

– Lakes and long stretch of beaches;

– Tranquil backwaters

– Cool mountains

– Dense foliage green to the eyes all over

– Places of worship like Sree Padmanabhaswamy temple Guruvayoor & Sabarimala

– Colourful and enchanting festivals

– Spectacular art forms

– A highly literate and cultured people

ALL ROLLED INTO ONE !

That is Kerala, the Tourist Paradise, now acclaimed by Tourists all over the world as "Gods own land".

Asked if they would come again, their reply was "We would love to, but can't say".

Surely this couple will be Kerala's Ambassadors in their home country. ■

(Smt. Deepa S. Mony in working in the Trivandrum office of Nabard. She has great interest in Tourism development and has a wealth of knowledge on the subject.)

Varkala Cliffs & Beach
Famous for "Janardana" Temple

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Dr. K. Choudhary
Prof. S.N. Tripathy
Dr. K.P. Singh
Dr. Jaswant Singh
Dr. K. Bhaskaran
Dr. M.M.S. Siddhu
Dr. N. Deb Burman
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Dr. Hoimi Basu
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The Tuberculosis Association of India

Shri. Ashok Sachdeva *Secretary General*
Shri. P.R. Menon *Superintendent*

A Brief Review of the Activities of the Tuberculosis Association of India

Shri. ASHOK SACHDEVA

The first organised and concerted effort to combat Tuberculosis in India was the establishment of the Tuberculosis Association of India in February 1939. Consistent with its status of National voluntary organisation, the Association has spared no efforts during the 56 years of its existence, to help intensify the anti-TB movement and supplement and complement governmental endeavors in implementing the National Tuberculosis Control Programme. In this, the Association is assisted by 25 State TB associations which are affiliated to it and over 300 District TB associations, which in turn, are affiliated to the State TB Associations. The Association works in close cooperation with the Ministry of Health and the Directorate General of Health services of the Government of India. Similarly, the State TB Associations also work in close cooperation with the Health Departments of their respective Governments.

The main object of this Association is prevention, control, treatment and relief of Tuberculosis. With the advent of specific, potent and effective drugs available for the treatment of tuberculosis, the emphasis is now laid mainly on early diagnosis and proper treatment. The New Delhi TB Centre managed by the Tuberculosis Association of India did pioneering work in establishing the efficacy of home treatment for tuberculosis. This ultimately led to the formation of a

National TB Control Programme which is acclaimed all over the world. Despite all efforts and spectacular advances in the medical sciences, tuberculosis , paradoxically continues to be one of the major public health problems in our country. This is largely because of the ignorance and superstitious beliefs of the common man. Therefore, we have now been focussing our attention mostly on health education to create an awareness in the public about tuberculosis and to remove misconceptions and superstitious beliefs that are still highly prevalent. Keeping these in mind, the Association has brought out health education material like films on tuberculosis, educational posters, cinema slides, rexine scrolls, flip books, school-health brochures, etc. in English, Hindi, and other regional languages. These are widely distributed through the State TB Associations, other voluntary organisations, State Governments and also to individuals to bring about awareness on the subject.

Annual National Conferences

An important and regular programme of the Association is the organisation of annual conferences for tuberculosis and chest disease workers to keep abreast of the latest developments in the anti-TB work. The last in the series i.e. 49th National Conference on Tuberculosis and Chest Diseases, was held at Pondicherry in October, 1994. The conference was inaugurated by the Hon'ble Deputy Union Minister for Health and Family Welfare Shri. Paban Singh Ghatowar. 35 scientific papers were presented in addition to one oration and one award paper. The Hon'ble Minister presented the various awards of the TAI to the recipients and a special conference Souvenir was released on the occasion. Important meetings of the standing Technical Committee and the Secretaries of State TB Association were held during the periodicity of the Conference.

The Golden Jubilee National Conference is scheduled to be held at Thiruvananthapuram during December, 1995. Apart from the prestigious orations, there would be a Golden jubilee guest lecture as also panel discussions. The subjects selected for this National conference include Management of Bronchial Asthma or Fiber-optic Bronchoscopy, National TB Programme including its assessment, Follow-up studies on patients completing short courses chemotherapy, Management or Treatment failure cases under field conditions, Newer Diagnostic Methods in Tuberculosis or Controversies in Respiratory Disease, Smoking and Tuberculosis, Role of Indian Systems of Medicine, Multi drug Resistance and its Management, Improvement of host factors in Tuberculosis, Drug Interaction with ATT and Serum Concentration of ATT and MDR.

These annual Conferences on Tuberculosis and Chest Diseases have been recognised as one of the best medical conferences in the country besides the usual rich fare of interesting papers, there are generally two prestigious orations, panel discussions and special sessions on current problems like HIV and Tuberculosis. The deliberations of these conferences substantially contribute to the National TB Control Programme in the country. Recommendations arising out of the Presidential address are forwarded to the Government.

Annual TB Seal Campaign

Another important and powerful impetus to the activities of our TB Associations is organisation of the annual TB seal Campaign. The campaign helps us to raise funds for promoting voluntary anti-TB work in the country and provides opportunities for every citizen to contribute to the fight against tuberculosis. It also helps to arouse consciousness among the public about the tuberculosis problem. In fact the TB Seal Campaign has been the important all India effort aimed at involving the people in the anti-TB movement and ensuring their full participation in implementing the National TB Control Programme. Needless to say, the State Associations have now become more active and their organisational set up has considerably improved due to the much needed additional finances received from the collection of the Seal campaign. It is, thus, certain that the TB Seal Campaign has built up an indomitable public opinion in favour of awareness about tuberculosis as it serves the said twin objectives. The 45th TB seal campaign 1994 was inaugurated in Delhi by his excellency President of India on 2nd October, 1994 at the Rashtrapati Bhavan, when the new TB seals deposing the motifs of "Endangered Species of India" were presented to the respected Rashtrapathy by Dr. P.K. Sen, the president of the Association. The Chairman of the Association Dr. A.K. Mukherjee, Director-General of Health services, presented the Special Souvenir brought out on the occasion to the President of India.

Fund-Raising-Cum-Health Education Campaign

Another very important and one of the worthwhile and meaningful activities, which has been accorded top priority and due importance and has been taken up on a war footing in an aggressive and vigorous manner, is the fund-raising-cum-health education campaign to make the Association self-supportive and self-sustaining. I am glad to say that through hard work, vigorous efforts, intelligent planning, the Association has been able to muster, in a short span, sufficient donations which helped in stabilising the financial position of the Association.

Additional funds : Special Souvenir etc.

For additional resources, the Association brought out a special souvenir at the time of the inauguration of 42nd TB Seal Campaign on 2nd October, 1991, which contained inspiring and encouraging messages from the high dignitaries, meaningful, educative, informative articles on different aspects of tuberculosis and advertisements and we were able to receive advertisements worth over Rs. 2 lacs. A similar souvenir was brought out again in 1994 on the occasion of the 45th TB Seal Campaign. The special Souvenir has been brought out on the occasion of the 46th TB Seal Campaign, 1995 as well. These are special Souvenir because they serve a multi-purpose cause. For the current souvenir, advertisements worth Rs. 2.90 lacs have already been booked. These special souvenirs not only mobilise funds for general activities of the Associations but also provide awareness on health education and propagating and promoting the TB Seal Campaign. It is a very special activity and the Souvenirs in the recent past have been well received and appreciated both for their contents and get up.

Contributions of Indian Missions Abroad

Our diplomatic missions abroad continue to assist the Association in

popularising our TB Seals in the countries where they represent our country. Collections made by the Indian Missions in respect of the 45th Campaign have amounted to over Rupees 1.50 lacs approximately. Our TB seals are also in constant demand by the various National Associations and individuals in other countries and many Associations abroad exchange their seals with ours. In fact our TB seals won the international award being placed at the second position for the seals depicting "Brides of India" brought out on the occasion of the 42nd TB Seal Campaign. This has been a matter of pride for the Association.

Publicity Cum Health Education Awareness Campaign

The Campaign was launched to propagate the TB Seal Campaign and to bring about awareness in the masses on the problem of tuberculosis. The campaign conveyed the message that facilities are available under the National Tuberculosis control Programme to combat tuberculosis.

Suitable advertisements and insertions were published on the aspects of the disease, its cure and facilities for diagnosis and cure etc.

Active contribution of the media, specially the newspapers including the regional newspapers and vernaculars, and cash donations for the purpose were received.

Research Activities

The Association started its research programme/activities in 1975 with the twin objectives of (1) conducting original studies in respect of short course chemotherapy, operational aspects and allied problems, etc. and (2) to inoculate a spirit of enquiry and research among the young workers and to raise the standard of scientific work in the country in its own humble way. The research committee ensures and monitors series of cooperative studies on various aspects of tuberculosis. The committee,, of late has been endeavoring to help develop the research potential in the country by locating young researches who are holding institutional positions and are interested in doing better research. The association sponsored 4 research workers to National TB Institute, Bangalore for learning the basics of research methodology by attending a Four Week Seminar to serve as a pilot experience. The matter is being coordinated with the Director, NTI, Bangalore in this regard.

The specific aim has been to encourage the researches to come up with proper research proposals and follow a proper research methodology. The association will continue to encourage the young research workers towards financial support and guidance in the respective areas.

Health Visitors Courses

Besides sponsoring various research studies, the Association also conducts its annual TB Health Visitors course at the New Delhi TB Centre. The course which has come to become popular, broadly has the following as subjects in its contents :

1. Tuberculosis, General and Public Health Nursing
2. Hygiene and Communicable Diseases
3. First aid and Home Nursing
4. Anatomy and Physiology
5. Social Welfare, Nutrition and Deticks
6. Health education

The Candidates are drawn from different states on selection basis.

During the year 1994, 21 candidates were selected to undergo the Health visitors' course. During 1995, 15 candidates have been selected for this course.

The Quarterly Technical Journal

The Indian Journal of Tuberculosis, a quarterly publication, has completed 41 years of useful service to the medical profession. The journal is the official organ of the Tuberculosis Association of India and is the only Journal devoted exclusively to tuberculosis in our country. It covers epidemiology, diagnosis, treatment, prevention and control of tuberculosis as well as related mycobacterial chest diseases, etc. It contains papers, mostly based on research done in India review articles by eminent authors, case reports and abstracts of important papers published in other journals.

The July issue of the Journal is devoted to orations and selected papers presented at the Annual National Conference on TB and Chest Diseases, as also summaries of the remaining papers. In addition reports on related National conferences and International Conferences, Book reviews and News & Notes relating to developments in the field of Tuberculosis are also published in the Journal. There are periodic reviews of the progress under the National tuberculosis Control Programme in India. The Journal has a good circulation among TB institutions in the country, Medical Colleges & Libraries, TB Specialists in India and abroad, as well as General Practitioners.

Several new features have been introduced during the period, viz. Forum, Leading Articles and Contemporary Issues and other materials of interest to tuberculosis workers. This has enabled the journal to maintain its high scientific standard. The coloured advertisements have added to the get up and revenues of the Journal.

Other Publications

The Association published in 1972 a comprehensive Text Book on tuberculosis in order to meet a long felt need for such book by specialists in India. The Second Edition of this Book was brought out in 1981.

In 1971 the Association published a Blue Print for Tuberculosis Work in India Based on the 8th Report of the WHO Expert Committee on Tuberculosis. This Blue Print was revised two times subsequently.

Another publication of the Association authored by Dr. S.P. Pamra, Ex-Honorary Technical Adviser of the Association is the Hand Book of Tuberculosis. This book covers, in simple language, the essential facts about the clinical, epidemiological and public health aspects of the disease and lays special stress on aspects covering nurses, health visitors, social workers, etc. in their day to day work.

The Association has also recently revised its brochure "Lectures on Tuberculosis for general Practitioners" authored by our Ex-Honorary Technical Adviser, Dr. S.P. Pamra.

Launching of Special Programmes

The Association takes up various important projects and health education programmes from time to time. After the

success of the USAID Project on Expanded Programme of Health Education and Community involvement in the National Tuberculosis Programme, the Association launched on 22nd February, 1992 an intensive tuberculosis programme in Delhi on experimental basis, thereby intensifying Anti-TB drive from February 24, 1992, in Delhi, so that from the experience gained, the other States could emulate the example. The programme was also reviewed in terms of the Strategy of the Revised National Tuberculosis Control Programme.

Anti TB Week

The Tuberculosis Association of India observes its annual Anti-Week from 17th to 23rd February. On the occasion, apart from collection of donations, health education material is distributed to the general public by the staff of the association. The State affiliates also observe the anti TB week in a similar manner. The Anti-TB Week, 1995 was inaugurated by the Chairman of the Association Dr. A.K. Mukherjee, Director-General of Health services on 20th February, 1995.

International Contacts

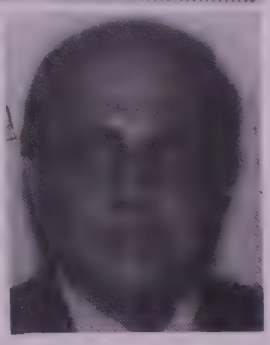
The Tuberculosis Associations of India is one of the earliest affiliates of the International Union Against Tuberculosis and Lung Diseases and has been working in close cooperation with them. It is also working in close cooperation with the International agencies like the WHO, UNICEF, etc.

Assistance to Patients

The Association, as usual, assisted patients with small cash grants from its funds. Assistance was restricted to cases requiring Immediate help or for travel and incidental expenses of Indigent patients stranded in Delhi. Several patients who asked for assistance in their hospitalization and treatment were recommended to the concerned state Associations and to various TB Institutions for help. ■

(Shri. Ashok Sachdeva is Secretary-General of the TB Association of India and Chief co-ordinator of the Golden Jubilee National Conference)

EXCERPTS FROM THE ADDRESS



Delivered by Dr. A.K. Mukherjee, Chairman, Tuberculosis Association of India and Director General of Health Services, Government of India, at the Annual General meeting of the Tuberculosis Association of India on 30th March, 1995.

The burden of pulmonary TB is staggering. Tuberculosis is the leading cause of death from a single infectious agent, accounting for 7% of all deaths and around 26% of all preventable deaths most of these deaths occur among young adults. The great majority of cases, and more than 95% of death occur in the developing world. Worldwide, six to eight million new cases of tuberculosis occur every year. TB currently kills two to three million people annually.

The story of TB in the nineties is only the Latest chapter in a long and momentous history of the impact of a bacterium on the human race. The number of new tuberculosis cases occurring each year is predicted to increase from 7.5 million (143 cases per 100,000) in 1990 to 8.8 million (152 per 100,000) in 1995 and 10.2 million (163 per 100,000) in the year 2000. In 1990, 2.5 million persons were estimated to have died of tuberculosis; at the same level of availability of treatment, it is predicted that 3 million tuberculosis deaths will occur in 1995 and 3.5 million in 2000.

Nearly 90 million new tuberculosis cases and 30 million tuberculosis deaths are expected to occur during the present decade at the present level of interventions. For a disease where intervention is known to be cost-effective, this is truly staggering.

The situation is worsening due to the epidemic of Human Immunodeficiency Virus infection and reactivation of tuberculosis in patients with" dual infection". The World Health Organisation has estimated that three million persons had "dual infection" in 1990; 78% occurring in Africa. People infected with both HIV and the tuberculosis bacillus have a 25-fold increased risk of developing potentially fatal disease. The interaction between TB and HIV infection has resulted in increased difficulty with diagnosis and treatment.

Tuberculosis, which affects adults during their most productive years and is curable and preventable disease, has thus become a priority in the 1990s after a period of neglect. It also has some of the most cost effective health interventions available. The thrust of tuberculosis research in developing countries like ours should be to support the National Tuberculosis Control Programme, both in the development of its infrastructure and in research, to assist and develop tuberculosis control strategies.

Forecasts of tuberculosis morbidity and mortality for the decays 1990-99 reveal an estimated 88 million new cases of tuberculosis, 8 million of which will be attributable HIV infection, will occur in the world during the decade; 30 million people are predicted to die of tuberculosis

in the same period, including 2.9 million attributable to HIV infection.

In India, current estimates place the annual deaths due to TB at 4 lakhs. The mortality rate due to TB has come down from 80 per lakh in 1968-69 to 50. The annual risk of infection is about 1.5 percent, and upto 12 to 14 million people may be suffering from active TB. Because TB-attributed deaths occur in the economically productive segments of the population, further consequences of adult deaths on children and other dependents are significant. The projected number of new cases are 1.98 million in 2000, 2.36 million in 2005 and 2.64 million in 2010. The revised strategy being implemented with the World Bank assistance may result in a significant reduction in the problem.

Cost effective tools exist for preventing and treating tuberculosis. We need to use them optimally. In fact, treatment of TB is one of the most cost-effective health interventions available to us today. Cost-effectiveness analysis and the use of DALYs (disability-adjusted life years) have demonstrated the economic importance of the disease and the cost-effectiveness of treatment. New drugs which can be taken for shorter periods have undoubtedly improved adherence and reduced the problem of multidrug resistance. The present situation calls for new Innovative approaches for effective control.

Gross inadequacy of funds to support various components of the programme has been primarily singled out for the poor achievements of results under the National TB Control Programme. Considering the vast magnitude of the problem of TB existing in the country and experts' concern of possible worsening of the situation with the advent of HIV spread in the country, renewed emphasis is being given to the National Tuberculosis Control programme and the World bank assistance has been sought to obtain adequate funds to support various components of the programme.

To start with, this Revised Strategy is to be implemented in 5 states namely Bihar, Himachal Pradesh, Gujarat, Kerala and West Bengal and 10 Metropolitan cities namely Bombay, Calcutta, Delhi, Madras, Bangalore, Hyderabad, Pune, Jaipur, Lucknow and Bhopal covering a population of 187 million with estimated budgetary requirement of Rs. 634 crores. The various components of the strategy are to be pretested in 15 project sites in these areas covering a population of 13.85 million with a budget estimated of Rs. 8 Crores.

The best way to prevent the disease is to cure infectious cases at early stage, since this also puts a stop to transmission. Control programme should ensure that patients are cured completely and the education component should be strengthened to raise public awareness of this problem. The BCG vaccination of infants helps to avoid the most serious forms of childhood tuberculosis.

The first step is to improve communication and encourage discussion and collaboration between the different organisations involved in tuberculosis control in order to determine how resources should be spent.

There is also much that we do not know about this disease. We know little about immunity to TB or about the viru-

lence of the organism. This knowledge would help us in developing improved diagnostic tools and vaccines, particularly since we have new molecular techniques to assist us.

For the laboratory research scientist, there is the challenge of using modern biotechnology to regenerate the scientific impetus and breadth of vision characteristic of TB research in the earlier part of this century, and of applying these advances to developing countries. If this can be done there is the change of a new vaccine, of newer methods for determining protective immunity and of using this information to reinforce the body's natural abilities to cope with infection. Research can help us to understand the virulence of the tubercle bacillus, and to development diagnostic tools and rapid tests for drug resistance. Research needs to be directed at providing appropriate, inexpensive medications for control programs. New drugs need to be developed which can destroy latent infection, and which require only days or weeks of therapy rather than months.

The energy and enthusiasm among the multidisciplinary groups of health care workers and scientists working on tuberculosis needs to be harnessed. TB Association of India can play a pivotal role in assisting the government plan an immediate and extensive response to this global emergency of tuberculosis, which may otherwise retain its place in history as one of the world's most devastating diseases.

TB Association of India has been playing a stellar role in the relent less fight against TB for more than 5 decaded now. We are fortunate to have a renowned authority and a veteran worker - Prof P.K. Sen - as our President to guide us at this crucial time when we have embarked on newer approaches and strengthening of our activities. The Association along with its affiliates has been doing commendable work in health education for creation of awareness through Publicity-cum-Health Education Awareness campaigns and other community level activities. For the 44th TB seal campaign, the designs of vintage cars selected proved to be very popular. Of the 11.8 million seals we printed an distributed, the largest quantity of over 2 million was taken by the Indian Railway TB Association. We are grateful to our Indian missions aboard, to whom we had sent blown up seals matching international standards for contributing around Rs. 1.6 lakhs.

The four decade old Indian journal of Tuberculosis and the Annual National Conference of TB and Chest Diseases Keep the professionals abreast of the recent technical advances.

I am grateful to the members of the Central, Committee, Technical, Research, Finance and Executive and other committees for their invaluable contributions in taking the Association from strength to strength. Only through such concerted efforts can we hope to see a day when TB is relegated to the history books and take its place next to smallpox as a scourge which has been eliminated from the face of the earth. Let us work to make this dream a reality. ■

TUBERCULOSIS CONTROL NEED FOR WISER AND WIDER PROGRAM

Dr. P.K. SEN

Contributions of Science have led us to a lucky position to date. After thousands of years Tuberculosis is on the decline. Responsible factor is possibly the natural phenomenon of **Herd Immunity,** supported by improvement of the **Standard of Living** and may be due to wide spread **chemotherapy.**

I should like to make a brief statement of the main factors for this position.

1. Herd Immunity

National Tuberculosis sample survey made around 1960 showed the prevalence of pulmonary tuberculosis is about the same in urban and rural areas. At this status of equitable distribution of Tuberculosis after heavier to 1 in the initial phase, the bacilli met gradually resistant population and the rate of the disease fell.

* Prof. S.L. Cummins. Working on the African population wrote clearly in his Book - The native Tuberculosis.

2. Discovery of tubercle bacillus in 1882 and following this tuberculin

I rate this discovery as the greatest contributor for the decline as this was the basis of almost all research studies and advances in the world.

Tuberculin - a product from the microbe - has cleared many problems of

infections and disease or the evolution of disease and contributed largely to the Epidemiology.

As I had been intimately involved in the past actions for more than half a century I venture to suggest with my limited knowledge a **Future Action program for major mistakes** and defaults and their remedial measures.

1. A Committee

However good a plan for action may be, it is of no use if it cannot be well executed. The planners must have proper power for execution also.

Provisionally I suggest the composition of this committee with :

1. Director General of Health Services as the Chairman, a member secretary, a convener and 3 other members from TAI, NTI and Madras Tuberculosis Centre, with power of co-option.
2. General Principles of all Actions Studies : All recommendations should be within our Financial and Technical Capacities.

   All Research Studies should be Co-operative and Pilot studies specially on Chemotherapy are necessary.

   Priority to be assigned to Previously unused or Virgin Rural Areas.
3. Epidemiological Studies to Determine Course of The Disease - rise or fall - Time related to be undertaken.

MISTAKE AND REMEDIAL MEASURES

Lot of water has passed under the bridge since the greatest contribution the discovery of the microbe. We can now dispassionately discuss our shortcomings and mistakes to avert them in future. I record the most important one only.

MISTAKES

I. Domiciliary Treatment

It was accepted by the International union Against Tuberculosis by careful assessment of studies on the result from well organised working fields of institutions, without any pilot study in the vast rural areas such organisations do not exist. I chaired the Technical Committee both in Paris and a year after in Istanbul but failed to remedy this great mistake due to my impatience to solve the hospitalisation problem. I still feel sad and regret having badly discharged a responsibility. In Istanbul, Dr. Johannes Holm of WHO and Dr. Fox presented the Madras Project study for the first time at the International Conference in the presence of great exponents of domiciliary treatment. But nobody warned me not to accept without this essential Guard.

Without limited resources, I think we made creditable attempts to use all the advantages of advancing science. We had BCG vaccination, the largest number. No other country can reach near us in field trials to find a drug regime suitable for us and in many other ways. They might not have needed them but we did not follow them blindly. Looking back I feel happy but disappointed also for obvious mistakes of omission and commission. I mention three only of which remedial measures have already started and must be pursued in all seriousness.

1. Perception of Domiciliary Treatment Without Proper Precaution

It is not likely that the bacilli have intelligence enough to recognise Home and Hospital and differ their action. Obviously it will the same for them. What may make a difference is the conditional factor like Motivation Indoctrination supervision, etc. Gone with the wind of science extra and special diet, climate, long and graduated activity but the others are essential for success.

NATIONAL SAMPLE SURVEY

Omission of Infection Rate. This very good survey was entirely for Morbidity rate. If only Tuberculin Test was included we could get the Infection rate around the year 1960 and as the Training and Demonstration Centres were making this test, we could compare year by year which way the rate is going. Gradual diminution of the rate would indicate decline of tuberculosis. We missed this good epidemiological test. But this can be redeemed by collecting test results from available sources.

2. Domiciliary Treatment

This was a more serious omission which cannot be redeemed but may lead us to repair by presenting further injury.

There are many other factors favoring to the decline of the disease and others, to retard it. Such a broad discussion is beyond the scope of this short paper. A committee should consider them and decide action to have impact on them. I should only list an Agenda of action till the end of this century.

A collection of Infection rate from all sources, specially at the age group of 14 years - to determine how far we are from 1.00 percent.

WHO had defined the Target of control as when the rate of infection is reduced to 1.00 percent at the age group of 14 years, Tuberculosis should be regarded as controlled in its eighth expert group report it is suggested that the specific tuberculosis control program should be withdrawn and the few cases remaining in the community should be handed over to general public health services.

No Intermediate step was suggested. As infrastructure of public health services and status of tuberculosis differ, Steps, if necessary, should be planned and acted upon according to them. Under these considerations, I think we need two steps that are suggested.

1. *Step of Incorporation* - To run Tuberculosis Control Program in close cooperation with public health services and gradually handing over some services like drug supply, home supervision etc. entirely to General Public Health.

2. *Next step or step of Integration.* Gradually withdraw the control program, keeping only advisory capacity. Reduction of Hospital Beds will be automatically decided by diminishing need.

3. Besides these specific measures important helpful forces should also be taken in hand. Most important among these are:

Peoples participation and cooperation of the general practitioners.

PEOPLES PARTICIPATION

To join hands to a program like this a person should have clear knowledge of who is joining and what is expected of him. For this purpose, an Educational system must be set up as education is the mother of knowledge, knowledge creates interest and interest along can offer sustained appropriate actions. TAI is already involved in well planned educational program. Although I am not an educationist, I feel like giving my lay ideas here.

1. *Publication of Book* - fairly elaborate on pathogenesis, and evolution of the disease, cause of symptoms, diagnosis with its pitfalls, Treatment, Prognosis and Prevention written in lay peoples language and in major languages.
2. To write for the School Books taking special care not to cause any scarce, but on the optimistic way that disease can be cured in 100 percent cases if only simple care and a routine check up can be kept.
3. A *Cinema*. The one produced by TAI under Dr. Pamra's direction is good and factual. We may try another in a interesting story form which can hold an abiding interest. I once approached Director Satyajit Ray but could not complete my attempt.

COOPERATION OF GENERAL PRACTITIONERS

The National Sample survey made around 1960 showed that there should be about 10 million cases in the country of which one-fourth are highly infectious. A small survey made by the Indian Medical Association of Calcutta found that on a very rough estimate one fourth of general practitioners' daily cases had clear symptoms and about 2 percent of them are due to tuberculous disease. These and along my other experiences seem to accept that about two and half million cases of known pool should be in the hands of the General Practitioners. If these are not well cared for control of forces, favourable, slowly get the upper hand towards control.

Plans and studies should be made to solve this important issue. I had meddled with the idea of an intermediate clinic run by mobile units dealing with diagnosis and Drug supply direct to the general practitioner. I may elaborate the procedures if desired. If pilot studies on this succeed then can I think that the country can be converted well by an adequate control Programme.

Attempts should also be made to introduce control oriented curriculum in the under-graduate studies in the Universities in Cooperation of the educational wing of the academy of medicine. Continuing education program should also be retained but they alone cannot touch even the fringe of the problem.

The powerful committee I suggested earlier should consider to have an expert group for designing all the educational programme not only to plan but also move with the authority of the committee.

We have manpower, food, and willing workers. If we can mobilise them and use them in the right way I have no doubt we will succeed the target of Tuberculosis control in a measurable time even with our modest technical and financial resources. ●

CALENDAR OF TUBERCULOSIS WORKERS' CONFERENCE

Ist The First Conference on Tuberculosis was organised in New Delhi in November, 1934 by the King George Thanks-giving (Anti-Tuberculosis) Fund. Twenty-four delegates attended this three-day Conference.

Under the auspices of the Tuberculosis Association of India, the First All India Tuberculosis Workers' Conference was held in New Delhi in November, 1939. Fifty delegates attended.

2nd The Second Conference was held in New Delhi in November, 1940. This was attended by ninety delegates.

3rd The Third Conference was held in New Delhi in March, 1945. Seventy delegates attended. Sir Joseph Bhore presided.

4th The Fourth Conference was held in New Delhi in November, 1946 and was attended by 110 delegates.

5th Madras invited the Fifth Conference, It was held in January, 1948. Over hundred delegates attended it. His excellency, Sir Archibald Nye, Governor of Madras, inaugurated the conference.

6th The Sixth Conference was held in Calcutta in December, 1948. Dr. R.B. Billimora was its President, Dr. B.C. Roy Premier of West Bengal, inaugurated it. 130 delegates attended.

7th The Seventh Conference was held in Bombay in November, 1949. Its President was Dr. A.C. Ukil. Rajkumari Amrit Kaur, Minister for Health, Government of India, and President of the Tuberculous Association of India, inaugurated the Conference: 130 delegates attended.

8th The Eighth Conference was held in Hyderabad in February, 1951. Dr. K. Vasudeva Rao was its President. Over 150 delegates attended. It was inaugurated by Dr. K.C.K.E. Raja, Director-General of Health services and Chairman, Tuberculosis Association of India.

9th The Nineth Conference was held in February, 1952 in Lucknow. Dr. P.V. Benjamin was its President. Over 170 delegates attended. It was inaugurated by Dr. K.C.K.E. Raja, D.G.H.S. and Chairman, Tuberculosis Association of India.

10th The Tenth Conference met in Mysore in February, 1953. Dr. K.L. Wig presided in the absence of Late R.B. Lal, the President-elect. It was inaugurated by Rajkumari Amrit Kaur, Union Health Minister and president of the Tuberculosis Association of India.

11th The Eleventh Conference was held in Nagpur in February, 1954. Dr. K.L. Wig was its President. About 130 delegates attended. Dr. Pattabhi Sitaramayya, Governor of Madhya Pradesh, inaugurated it.

12th The Twelfth Conference was held in Amritsar in February, 1955 with Dr. B.B. Yodh as the president.

About 175 delegates attended. Shri. C.P.N. Singh Governor of Panjab, inaugurated the Conference.

13th The Thirteenth Conference was held in Trivandrum in January 1956. Dr. T.J. Joseph was its president. About 150 delegates attended. His Highness the Rajpramukh of Travancore inaugurated it.

In 1957 there was no national TB Conference. Instead the Association hosted the International TB Conference in January that year in New Delhi. Rajkumari Amrit Kaur was Honorary President of the International Conference which was inaugurated by Dr. Rajendra Prasad, President of India, and addressed by Prime Minister, Pandit Jawaharlal Nehru.

14th The Fourteenth Conference was held in Madras in January, 1958. Dr. K.S. Sanjivi was its President. About 200 delegates attended. It was inaugurated by Shri. Bishnuram Medhi, Governor of Madras.

15th The Fifteenth Conference was held in Jaipur, 1959. It was inaugurated by Dr. D.P. Karmakar, Union Health Minister. Over 200 delegates attended. Dr. B.K. Sikand was the President of this Conference.

16th The Sixteenth Conference was held in Poona in January, 1960. Over 250 delegates attended. Dr. P.K. Sen was its president. It was inaugurated by Rajkumari Amrit Kaur, Union Minister and President, Tuberculosis Association of India.

17th The Seventeenth Conference was held in Cuttack in January-February, 1961. It was inaugurated by Y.N. Sukthnakar, Governor of Orissa. Over 200 delegates attended. A new feature of the conference was that Dr. A.S. Modi attended as the Guest Speaker from Hong Kong. Dr. Frimodt-Moller was the President.

18th The Eighteenth Conference was held in Bangalore in January, 1962. Dr. R.N. Tandon was its president. Over 300 delegates attended. The Conference was inaugurated by the Maharaja, Shri. Jayachamaraja Wadyar Bahadur, governor of Mysore.

19th The Nineteenth Conference was held in Delhi in April, 1964. Dr. L.R. Dongrey was its President. Over 400 delegates attended. The conference was inaugurated by Dr. Sushila Nayar, Union Minister for Health.

20th The Twenteeth Conference was held in Ahmedabad in February, 1965, and was presided over by Dr. M.D. Deshmukh. The conference was inaugurated by Nawab Mehdi Nawaz Jung, Governor of Gujarat. About 300 delegates attended it.

21st The Twenty-first Conference was held in Calcutta in February, 1966. Dr. K.N. Rao, Director-General of Health Services and Chairman, TB Association of India, was the President. About 350 delegates attended. The Conference was inaugurated by Smt. Padmaja Naidu, governor of West Bengal.

22nd The Twenty-second Conference was held in Hyderabad in February, 1967. Major (Dr.) Khushdeva Singh of Patiala was the President of the Conference. It was inaugurated by Shri. Pattom Thanu Pillai, Governor of Andhra Pradesh. Over 250 delegates attended.

23rd The Twenty-third Conference was held in Bombay in January, 1968. Dr. R. Viswanathan was its President. It was inaugurated by Dr. P.V. Cherian, Governor of Maharashtra. Over 300 delegates attended.

24th The Twenty-fourth Conference was held in Trivandrum in January, 1969. The President of the Conference was Dr. N.L. Bordia. It was inaugurated by Shri. V. Viswanathan, Governor of Kerala. Over 300 delegates attended.

25th The Twenty-fifth National conference was held in Patiala, Panjab, in January, 1970. Dr. M. Umesh Rao was the President of the Conference, It was inaugurated by Dr. C.C. Pavate, Governor of Panjab. About 250 delegates attended.

26th The Twenty-sixth Conference was held in Bangalore in January, 1971. Dr. K. Somayya was its president. Shri. Dharma Vira, Governor of Karnataka, inaugurated the Conference. Over 300 delegates attended.

27th The Twenty-seventh Conference was held in Patna in November, 1972. Dr. K.N. De of Calcutta was its President. Shri. Dev Kanta Barooh, Governor of Bihar, inaugurated the Conference. Over 250 delegates attended.

28th The Twenty-eight National was held in Madras in January, 1974. Dr. S.P. Pamra was its President. Shri K.K. Shah, Governor of Madras, inaugurated the Conference. Over 300 delegates attended.

29th The Twenty-ninth Conference was held in New Delhi in November, 1974. this was combined with the IX the TB conference of the Eastern Region of the IUAT Due to the absence of Dr. M.S. Chadha, Shri. S. Ranganathan, President of the Association, presided over the Conference. The Conference was inaugurated by Shri. Fakhruddin Ali Ahmed, President of India and addressed by Dr. Karan Sing, Union Minister for Health and Family Planning. Over 400 delegates attended the Conference.

30th The Thirteenth Conference was held in Hyderabad in November, 1975. Dr. H.B. Dingely was its President. Over 200 delegates attended the Conference. It was inaugurated by Shri S. Obul Reddy, Governor of Andhra Pradesh.

31st The Thirty-First Conference was held in Lucknow in November 1976. Dr. Tahir Mirza was its President. Over 300 delegates attended the Conference,. It was inaugurated by Shri M. Chenna Reddy, governor of Uttar Pradesh.

32nd The Thirty-second Conference was held in Trivandrum in November, 1977. Dr. K.V. Krishnaswami was its president. About 400 delegates

attended the Conference. Smt. Jyoti Venkatachallam, Governor of Kerala, inaugurated the Conference.

33rd The Thirty-third Conference was held in Bhopal in November, 1978, Dr. J.L. Bhatia was its President. The Conference was inaugurated by Shri,. C.M. Poonach, Governor of Madhya Pradesh. About 300 delegates attended.

34th The Thirty-fourth Conference was held in Jaipur in October, 1979, Dr. M.L. Mehrotra was its President. Shri. Bhairon Singh Shekawat, Chief Minister of Rajasthan, inaugurated the Conference. About 300 delegates attended.

35th The Thirty-Fifth Conference was held in Bombay in November, 1980. Dr. M.M. Singh was its President. Dr. Bali Ram Hira, State Health Minister, Maharashtra, inaugurated the Conference. About 650 delegates attended.

36th The Thirty-sixth Conference was held in Baroda in November, 1981. Dr. G.D. Gothi was its President Smt. Sharda Mukherjee, Governor of Gujarat, inaugurated the conference. About 500 delegates attended.

37th The Thirty-seventh Conference was held in New Delhi in November, 1982. Dr. Jaswanth Sing was its President. Shri. M. Hidayathulla, vice-President of India, inaugurated the Conference. About 600 delegates attended.

38th The Thirty-eight Conference was held in Panaji in October, 1983. Dr. S. Sivaraman was its President. Shri. K.T. Satarwala, Lt. Governor of Goa, Daman Diu, inaugurated the Conference. About 700 delegates attended.

39th The thirty-ninth Conference was held in Cuttack in January, 1985. Dr. A.G. Patel was its President. Shri. B.N. Pandey, governor of Orissa, inaugurated the Conference. About 500 delegates attended.

40th The Fourteenth Conference was held in Shillong in November, 1985. Dr. D. Umapathy Rao was its President. Smt. Mohsina Kidwai, Union Minister for Health and Family Welfare, inaugurated the Conference. About 400 delegates attended.

41st The Fourty-first Conference was held in Hyderabad in October 1986. Dr. S.P. Gupta was its president. Smt. Kumulbden Mani Sankar Joshi, governor of Andra Pradesh, inaugurated the conference. About 500 delegates attended.

42nd The forty-second Conference was held in Lucknow in December 1987. Dr. P.A. Deshmukh was its President. Shri Lopati Tripathy, Minister for Health and F.W., U.P. inaugurated the Conference. About 500 delegates attended.

43rd Forty third Conference was held in Calcutta in December 1988. Dr. S.P. Tripathy was its president. Prof. S. Nurl Hassan, Governor of West Bengal inaugurated the conference. About 450 delegates attended.

44th The 44th National Conference on Tuberculosis and Chest Diseases was held in Madras in December, 1989. In the absence of Dr. S.C.

Kapur President of conference, Dr. K. Jagannath presided over the conference. Dr. K. Deivasigamani, Minister for Health & family welfare, Government of Tamil Nadu, inaugurated the conference. About 600 delegates attended.

45th The 45th National Conference on Tuberculosis and Chest Diseases was held in Rohtak (Haryana) in January 1991. Prof. K.C. Mohanty was its president. Shri. Dahnima Lal Mandel, Governor of Haryana, inaugurated the Conference. About 400 delegates attended.

46th The 46th Conference on tuberculosis and Chest Diseases was held in New Delhi in November 1991. Dr. S.B. Trivedi was its president. Dr. M.S. Chadha, President, Tuberculosis Association of India, inaugurated the Conference. About 450 delegates attended.

47th The 47th National Conference on Tuberculosis and Chest Diseases was held in Bombay in November 1992. Dr. D.P. Verma was its President. Shri. C. Subrahmaiam, Governor of Maharashtra, inaugurated the Conference. About 600 delegates attended

48th The 48th National Conference on Tuberculosis and Chest Diseases was held in Bhopal (Madhya Pradesh) in December 1993. Dr. M.M.S. Siddhu was its President. Shri. Mohammed Shafi Quershi, Governor of Madhya Pradesh, inaugurated the Conference. About 450 delegates attended.

49th The 49th National conference on Tuberculosis and Chest Diseases was held in Pondichery in October 1994. Dr. R.C. Jain was its president. Shri., Paban Singh Ghatowar, Union Minister for health and Family Welfare inaugurated the Conference. About 500 delegates attended.

Tuberculosis

Prime Messages

1. Tuberculosis (TB) is a preventable disease that can cause suffering and death among young and old. It is particularly severe in children under 5 years of age.

2. Children can be protected against TB through BCG immunization. BCG should be given as soon after birth as possible.

3. Well nourished children are better able to resist TB infection.

4. Children are infected by adults who cough out TB germs. These adults should receive adequate treatment for TB. They should not cough or spit near young children.

5. Serious manifestations of TB in children include TB of the brain (meningitis) which often leads to death. Those that survive may become mentally handicapped. TB also affects lungs, bones and glands.

6. Tuberculosis can be cured.

7. Tuberculosis is not dangerous if the patient is treated.

SOURCE : FACTS FOR LIFE - A UNICEF - UNESCO - WHO PUBLICATION

MEMORABLE DISCOVERIES

1865-1868 : Jean-Antoine Villemin, A French veterinary surgeon, showed that tuberculosis is a communicable disease.

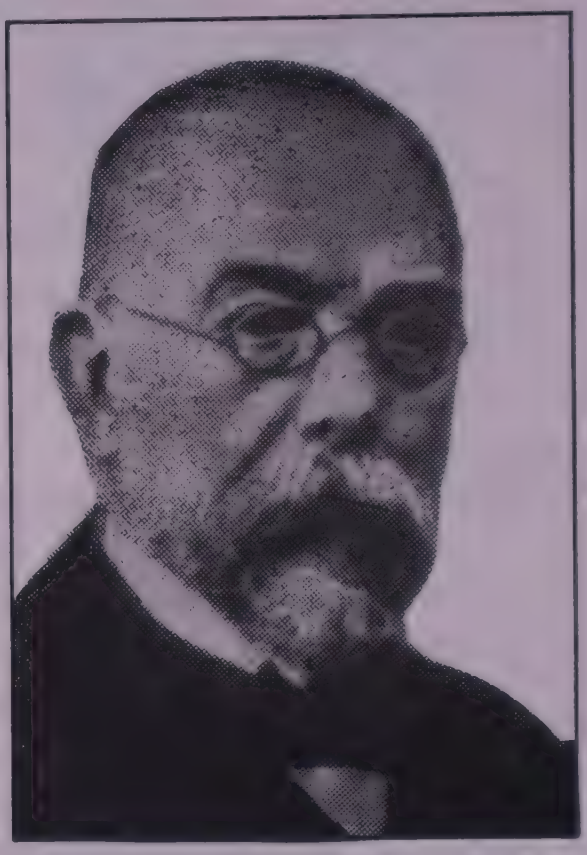
1890 : Robert Koch produced tuberculin, an extract of dead tubercle bacilli, used as a diagnostic test of tuberculosis infection.

1895 : Roentgen discovered in Vienna, the X-ray which allow an examination of the chest. For the first time, there were radiological images available, which showed the extent of the lesions in patients.

1921 : A Calmette and C. Guerin discovered BCG, an attenuated form of the bovine bacillus, as vaccination against tuberculosis.

1944 : Selman A. Waksman and his colleagues, discovered streptomycin, an antibiotic effective against tuberculosis.

1946-1952 : New drugs appeared viz., para - aminosalicylic acid (PAS) and Isoniazid (INH). these drugs are highly effective and very inexpensive.



ROBERT KOCH

1966 : Rifampicin proved to be an excellent drug against tuberculosis.

Source: Facts and figures on Tuberculosis and National Tuberculosis programme: 1944; National Tuberculosis Institute, Bangalore. Acknowledged with thanks.

A Novel Scheme From SBT

You can now withdraw

•

your Fixed Deposits

•

in parts,

•

at your option,

•

without closing

•

the entire deposit prematurely

Unit Deposit Scheme

STATE BANK OF TRAVANCORE

A 100 KVA transformer can satisfactorily take 33.3 KVA single phase load on each of its three phases if it is fully balanced. On the other hand it can not take even 50 KVA load if it is connected on one phase only. This embases the balancing of loads equally between the phases. Therefore never add or remove load without prior permission of K.S.E.B. for effective utilization of our transformers and machines.

Remember, un balancing leads to burning out of bulbs and house hold appliances and machines too.

PUBLIC RELATIONS, K.S.E.BOARD

THE 50TH NATIONAL CONFERENCE ON TB & CHEST DISEASES
(Golden Jubilee Year)

HOST : Tuberculosis Association of Kerala
VENUE : Kanakakunnu Palace, Trivandrum
DATES : 6 to 9 December 1995.

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ABOUT OURSELVES

Dr. S. SIVARAMAN

Early in 1930, the King George Thanks-giving Fund, an adboch body managed by the Indian Red Cross Society carried out extensive propaganda in creating community effort to face the growing menace of Tuberculosis in India. Later, in 1939, the Tuberculosis Association of India was established in the month of February. Dr. P.V. Benjamin realised that a continuous method of fund raising was required to meet the challenge of Tuberculosis, and he proposed introduction of the TB seals sale campaign in the country. This type of fund raising was already existing in a few countries of the world in the name of `Christmas Seals' sale campaign.

In 1950, the Government of India gave consent to the Tuberculosis Association of India to start TB seal sale campaign. Dr. P.V. Benjamin, then Adviser to the Government of India on Tuberculosis Control visited states which did not have a Tuberculosis Association, and initiated action in those states to organise Associations to be affiliated to the Tuberculosis Association of India. The intention was to extend tuberculosis control activities in those states and to extend the seal sale campaign to cover the entire country. Thus, `Tuberculosis Association of Travancore-Cochin', came into being by the middle of the year 1950. The Honorable Minister for Health and Finance was the first President. Director of Public Health was its Secretary. The Surgeon General, T.C. State was the Vice-President. Finance Secretary to the Government was the Treasurer.

The first seal sale campaign took off satisfactorily collecting Rs. 34,990 of which Rs. 13,681 and Rs. 13,634 respectively were collected from the districts of Trichur

and Trivandrum. The collections from the remaining two districts of the State, Quilon and Kottayam were not up to expectations. Utilising the funds thus raised, it was decided to establish tuberculosis isolation beds attached to TB Clinics or hospitals and to give preference to those taluks which had collected Rs. 5000 or more in one campaign. A portion of the sale proceeds used to be earmarked for giving assistance to the poor patients of the TB Sanatoria in the State at Nagercoil and Mulankunnathukavu and Clinics in the State at Palluruthy, Kottayam, Trichur and the TB Centre at Trivandrum. This continued until the Government of Kerala started giving financial assistance to indigent TB patients.

With the re-organisation of the States, in 1956, Kerala State was formed, and the Travancore-Cochin State Association was re-designated as the Kerala TB Association. The seal sale collection in the State gradually picked up momentum and by the end of the sixties, the Kerala Association secured the covetable position, as the second best State Association in the seals sale collection. Since then, Kerala State Association has been consistently getting the seal sale trophy awarded to the 2nd best State Association in seal sale collection. Madras State (Tamil Nadu) always topped the States in this activity.

Construction of TB seal wards continued for a longer period than we wanted due to compelling public demand. This activity, however, has been discontinued for some years now. Health Education always had been a major activity undertaken from the very inception of the Association. A novel method tried and found highly successful, was to reach remote households through school teachers and students. Teachers of High Schools, invariably class teachers of Standard VIII were invited to attend a one day class on tuberculosis. Through these teachers, the booklet 'Beat T.B.' was distributed to the students of Standard VIII with a request to teach the contents of the book to the students. Subsequently, a written test was conducted in those classes, and students who topped in each of the schools were awarded prizes at a function arranged by the Association. By the above programme, the booklet reached many households carrying important messages on tuberculosis and its control, benefitting large number of people.

To perpetuate the memory of late Dr. P.V. Benjamin who could rightly be called the Father of the Anti-TB movement in the country, a Gold medal for Final Year M.B.B.S. Students was instituted- 'P.V. Benjamin Gold Medal'. Heads of Departments of Respiratory medicine

and tuberculosis were requested to conduct examinations on tuberculosis to students of final year MBBS class to select the recipient of this medal. Written test followed by viva was the method followed.

Vehicles and X-Ray machines with Oelca Camera were supplied by the UNICEF and later by SIDA to the District Tuberculosis Centres in the country. Once, this assistance ceased, the Kerala TB Association decided to step into the shoes of the foreign agency to supply the above requirements of D.T.Cs and other Tuberculosis Institutions in the State.

When Surgery for Tuberculosis and Chest Diseases was started at the TB Hospital Pulayanarcottah, at the request of the Thoracic Surgeon, the Operation theatre was centrally air conditioned by the Association.

In 1974, the Silver Jubilee year of the TB sell seal campaign in the country, the Association decided to build a fitting memorial. With this in mind, a raffle was conducted with Government sanction which brought in an income of Rs.7.5 lakhs. With the resources so mobilised, the building now housing the State TB Centre was constructed and donated to the Government. Sri. C. Achutha Menon, Chief Minister of Kerala inaugurated this building in the presence of Sri . B.M. Cariappa Secretary- General of the Tuberculosis Association of India. Sri. N.K. Balakrishnan, Hon'ble Minister for Health, without whose support and enthusiasm, the special fund raising would not have succeeded, presided over the meeting.

We have so far hosted 3 National Conference in the State. The 50th National Conference being hosted this year from the 6th to the 9th of December is the fourth. We sincerely hope that this conference will prove to be a happy and memorable event to all the participants.

■

[Dr. S. Sivaraman was Director of the State TB Centre and Honorary Secretary of the Kerala TB Association for 10 years. He retired as Additional Director of Health Services. Subsequently, he was Project Director in the USAID Project for Tuberculosis Control with the TB Association of India, New Delhi. He is currently a member in the Executive Committee of the TB Association of India and Executive Chairman of the Organising Committee of the Golden Jubilee National Conference]

Role of Diet and other Environmental Factors in Cancer Control

Shri. P. JANARDANA AIYAR

INTRODUCTION

The tissues of our body are made up of millions of individual building cells. Normally one cell divides into two daughter cells. This ability is controlled so that cell death and cell birth are roughly equal in an adult. This control mechanism sometimes get lost, and uncontrolled growth of cells take place. Cancer is thus a disorder of cellular behaviour–a case where abnormal cells grow out of control. These can spread throughout the body.

Scientists agree that people get cancer mainly through repeated or long-term contact with one or more cancer causing agents called carcinogens. The carcinogens cause body cells to change their structures and to grow out of control. This happens due to damage to DNA - the genetic material that controls cell functions. It is now known that about 80 percent of cancer cases are tied to the way people live their lives. For example the foods they eat, the work they do and whether they smoke or use tobacco in some form. This means that diet and environmental factors affect the likelihood of one getting cancer.

Once we know that some of the factors can increase the possibility of getting cancer, we can control or change our life style. Cigarette smoking, and diet styles are two of the most important factors which can cause cancer, but could be

changed or controlled. But we cannot likewise change or control exposures in work places, except taking possible protective measures.

EXPOSURE IN WORK PLACE

Some of the carcinogens in work places which can cause cancer are chemical substances like Arsenic, Asbestos, Chromium, Benzene, Benzidine, Coal-tar, mineral oils, leather dust, wood dust, Vinyl chroloride and exposure to X-ray/ultra-violet rays.

Work places like Oil refineries, insecticide manufacturing/spraying, chemical industries, glass and pottery manufacture, smelting iron foundries, metal grinding and polishing, brake and clutch repair, welding, leather works, shoe making, wood works, lubricants, aniline dyes and other dye stuffs, plastic manufacture, explosives etc. are potential sources.

It is hard to directly suspect carcinogens except by test on animals. But direct human exposures to cancer-causing substances often occur. By studies on exposed population, for example exposure to tobacco smoke or asbestos has shown higher frequency of cancer of the lung and other organs, as against unexposed people. From such population studies, certain agents or industrial processes are seen to be causes of human cancers. Results of such studies published by the National Institute of Health of the U.S. (1990) are given below :

Cause	Exposure
Arsenic and arsenic compounds	Pesticides, manufacture of glass and ceramics, smelting of metal ores.
Asbestos	Manufacture of asbestos containing materials, insulation, brake linings.
Auramine, Benzidine Naphthylamines	Manufacture of dyes
Benzene	Manufacture of chemicals, Plastics, Paints and Adhesives, Gasoline Fumes.
Chromium and Chromium compounds	Manufacture of metals, alloys, Protective coating on metals.
Coke oven emissions	Manufacture of coke
Hematite	Mining of Iron ore
Mustard gas	Chemical warfare agent
Naphthyl amines, Chlorambucil, Cyclophosphamide, Diethylstilbestrol, Melphalan	Drug Manufacture
Nickel Refining	Refining process

Radiation and radioactive materials	Sunlight, X-ray, Industrial processes
Soot, Tar, Mineral oils	Manufacture of coal-tar and creosote, crude mineral oils and cutting oils
Thorium oxide	X-ray imaging in medical examinations, manufacture of ceramics, incandescent lamps, magnesium alloys, nuclear reactors, vacuum tubes.
Tobacco & Tobacco smoke	Cigarettes, chewing tobacco, snuff, pan masala

ROLE OF DIET

The role of diet as an important environment variable has recently gained increasing attention. Many institutions concerned with Cancer Control and public health, all over the world have been carrying out research on various aspects of the subject including site-specific studies. Lot of work has been done in the U.S.A, U.K., France, Germany, Japan and other countries. The Committee on Diet, Nutrition and Cancer of the National Research Council (U.S.A) has reviewed and co-related many of the studies in its Report. The result of the studies can be summarised as follows :

1. Certain foods and some nutrients contained in these foods may be associated with the development of cancer.
2. Some vitamins and dietary factors may help protecting from developing some forms of cancer. In other words, they can block the chemicals that initiate cancer.
3. Some food articles can repair some of the cellular damage, that has been done. And most important, some foods have the ability to eat away the cancer cells i.e., shrink the pre-cancerous cells. This category can be called foods which can fight cancer.

We will consider these, one by one.

1. Foods which may help to develop cancer

A high intake of dietary fat, particularly animal fat which contains high percentage of polysaturated fatty acids is a risk factor for cancer. Deep fried food poses a great risk and the use of the same oil for repeated frying processes is a serious risk because during the process of repeated heating, carcinogenic materials are formed in the oil and passed on to the food. In this respect, the fast food which has now become a favourite for all people, poses a great risk, since the oil is used by them for repeated frying for days together. In a report from the Adyar Cancer Institute, in the Indian Journal of Experimental Biology, it is stated that charred upma, dosai, fried fish etc. contain carcinogens. Smoked and salted food are also serious health hazards, since the Nitrosamines formed in the food are carcinogenic. The

practice of preserving meat with Nitrites may lead to formation of nitrosamines, by interaction with amines. The aflatoxins in groundnuts and fungal toxins in other foods are known to be carcinogenic. The residual pesticides in food grains, vegetables and fruits constitute another potential danger. We should be careful to wash these very well with plenty of water to remove the pesticide residues, before use.

Dietary Iron in excess of the normal requirements has been proved to lead to cancer of colon, liver etc., both in men and women. Iron does the function of carrying oxygen to the cells (red cells being enriched with Oxygen). This role of Iron as a dietary oxidant is counter to the effects of materials like Beta carotene and Vitamins C & E which due to their antioxidant properties help to protect against Cancer.

Processed foods also pose a great threat. Most of the coal-tar dyes which are used to give attractive colour to various processed foods and drinks are capable of causing cancer. The World Health Organisation has published several reports about the carcinogenic property of coal-tar dyes. Dulcin, and Cyclamate which are used as artificial sweeteners in food and drink are known to produce cancer of the liver. Saccharin is popular as a sweetener among persons suffering from Diabetes, but continued use of saccharin is also hazardous according to results of studies. A recent report from the Division of Toxicology, Baylor College of Medicine, Houston, Texas, U.S. states that the flavour used in Cola drinks induces modifications in the DNA molecules in the liver, which could lead to cancer, Many aromatic compounds are carcinogenic because Benzene the mother of aronatic compounds itself is carinogenic. The use of preservatives, flavouring materials and various processing aids to improve colour, appearance, flavour and taste are therefore fraught with great danger.

The Prevention of Food Adulteration Act has clearly laid down rules to be followed in the matter. The authorities responsible to enforce the Act effectively are responsible to protect the interest of the public, but the consumers should nevertheless be vigilant in the matter. We have to strictly avoid foods and cooking practices which are known to be dangerous to health.

2. *Protective Foods*

Studies world-wide have revealed that people who eat lot of fruits and vegetables have only half the cancer rates of those who eat less fruits and vegetables. This applies to cancers of all the organs particularly oral cavity, lung, colon, breast and uterine cervix, which account for over 50 per cent of the cancer in men and women in this State. Regular use of citrus fruits is known to be effective in reducing the risk of pancreatic cancer, by over one-half.

Broccoli, a member of the cabbage family is rich in Indole carbinol which breaks down estrogen, a hormone that seems to promote the development of certain breast tumours. A cup of broccoli on alternate days could provide enough In-

dole carbinol to prevent the growths. The Beta carotene in it can also help ward off lung, throat and bladder cancer and reduce risk of heart attacks.

The sulphur compounds in garlic may suppress development of stomach cancer and breast cancer. The lecithin in soya bean can prevent liver cancer, and the isoflavones in it may help to break down the toxic agents that can cause the malignancy.

Sesame seeds are rich in linoleic and linolenic acids, which are two essential unsaturated fatty acids. The latter may inhibit the body's production of prostaglandins - a hormone substance that can contribute to tumours.

3. *Foods which could repair cellular damage or shrink precancerous cells - i.e., foods which can fight cancer*

The Beta carotene in carrot is understood to have a direct toxic effect on the malignant tumour cells. It also reduces the growth of lung cancer cells and alters the proteins needed for tumours to grow. An important finding is that Beta carotene can change in the human body into retinoic acid, a substance used for treatment of cancer.

Researchers have found that garlic and onions contain compounds which can block carcinogens linked to colon, stomach, lung and liver cancer. Some of the chemicals are toxic to malignant cells. They also act by boosting the immune functions of the body which destroy the cancer cells.

Lycopene the red pigment in tomatoes (also found in watermelon) is an antioxidant which eats away the radicals that trigger cancer.

Wheat bran is known to lower the risk of colon cancer. Two servings of 30 gm wheat bran cereal every day showed shrinking of pre-malignant colon polyps in six months time. This is an important finding because it reveals that dietary intervention may work even after the onset of cancer.

This is the story of the vegetable bin which turns out to be a drugstore. It is amazing that common plants store potent chemical compounds that could block the body's synthesis of carcinogens or could fight the carcinogens from external sources. A lot of research on the plant wealth indigenous to our place is needed.

CONCLUSION

Cancer may affect any organ of the human body. The disease develops slowly over a period of years which means that we have several years in which to hinder or promote it. Hence for protection against cancer, it is essential that we develop and follow a diet culture/style which will :

a. eliminate animal fats and polysaturated fatty acids, as far as possible.

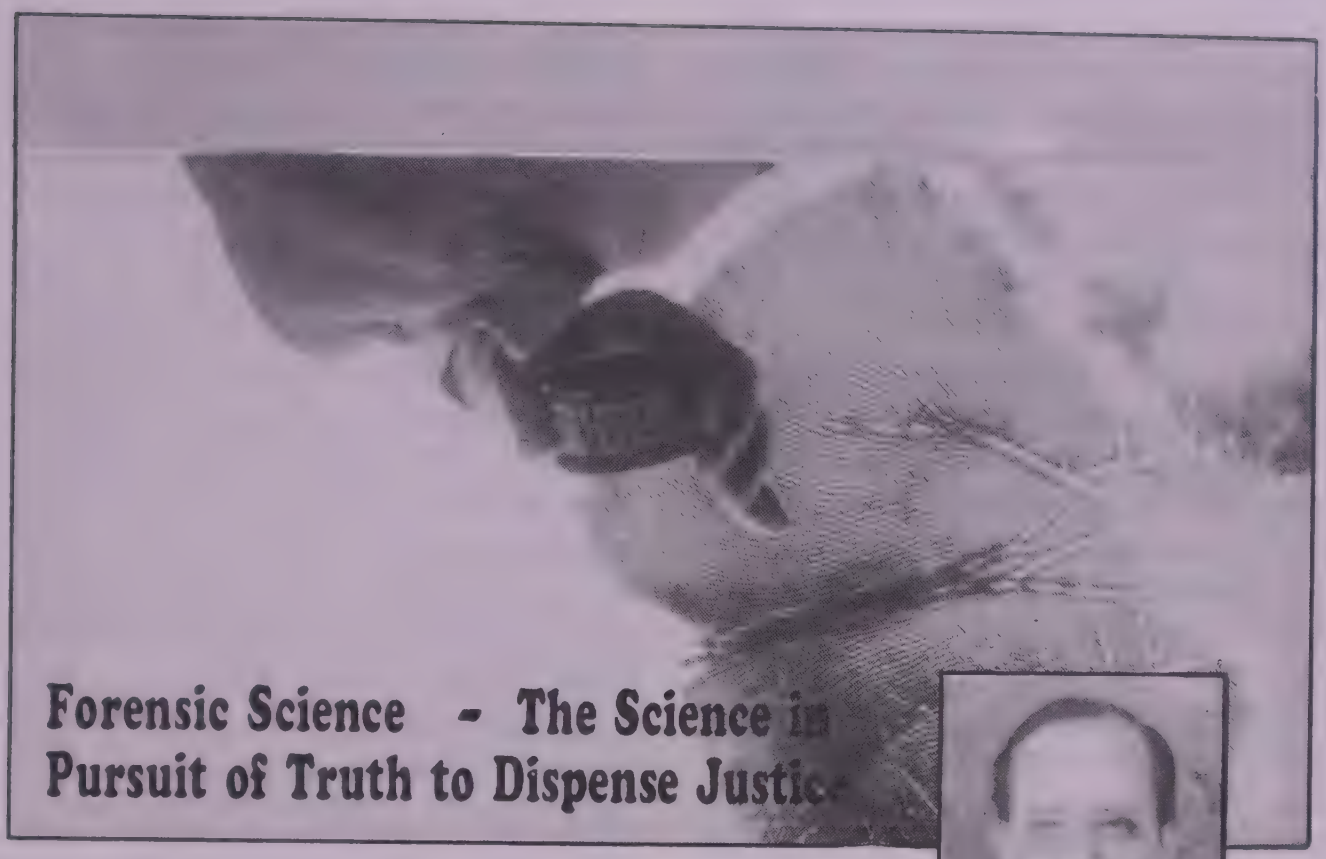
b. reduce total intake of dietary fat,

c. include plenty of deep green, yellow and orange vegetables and fruits like carrots, sweet potato, cabbage, cauliflower, broccoli, drumstick leaves, tomato, apples, water melon, grape

fruit and papaya, alongwith citrus fruits, garlic/onion, skimmed milk, soya beans, wheat bran, whole dried beans and grams.

Such a diet style will also help to keep at bay diabetes and heart diseases, which are two of the diseases now in the fore-front. In this context, we will do well to look back to the relevance of traditional Kerala menus like Aviyal, Thoran, Erisseri, Olan, Puzhukku, Puttu Kadala Pappadam, and Kanji Payar. Let us feel proud of our traditional menus. Let us start re-introducing them into our dietary habit and also create awareness about these in the community around us. ■

(Shri P. Janardana Aiyar was Chief Govt. Analyst, Kerala. After retirement, he was a WHO Consultant in Food Hygiene for about a year. Subsequently, he was Project Director in the USAID Project for Tuberculosis Control in Kerala. Currently, he is Honorary Secretary of the Regional Cancer Association, Trivandrum and Organising Secretary of the Golden Jubilee National Conference on TB & Chest Diseases)



Forensic Science - The Science in Pursuit of Truth to Dispense Justice

Dr. A. KRISHNAMOORTHY

Crimes are as old as man. In primitive society, might was right. There was no rule of law. An eye for an eye and a tooth for a tooth was the order of the day. Slowly, civilisation dawned on man and he did not want to return the Criminal Act as such, if he was given some compensation for the loss sustained, and some punishment was given to the criminal. This led to the problem of establishing guilt and determining the punishment. In the early days, punishments awarded were cruel and inhuman, but this helped to lay the foundation for Criminal Justice Administration. As centuries marched ahead, the procedure for determining the guilt and identifying the criminal also changed radically. Superstitions gradually gave way to scientific thinking. Religious superstitions and black magic prevailed in the early era. The Hummurabes' Code in Egyptian civilisation, Caroline Code in Roman civilisation and prescriptions of Manusmritis and Vedas in Indo-Aryan civilisation, refer to problems bearing on suicide, homicide, accidents, abortion, pregnancy, chastity, legitimacy, cases of poisoning, etc. Kautilya's "Arthasasthra" written some 2300 years back is accepted as the best Indian medico-legal treatise apart from its vital sermonising prescriptory on State Policies and problems. It is found in vedas that Manu ordained abortion as a criminal offense,

prohibited execution of pregnant women, and enjoined that testimony of children, the drunk and insane should not be relied upon. References about the codes dealing with penalties for various offenses as also about medical testimony are found in Vedas, Manusamhita, Kautilya's Arthasasthra etc.

With the advent of British Raj and promulgation of Indian Penal Code, Criminal Procedure Code and the Indian Evidence Act., codified statutes paved the way for an effective Criminal Justice system. The Police force came into existence to ensure discipline, law and order and to take action against Criminals. Law courts were established and the police chargesheeted cases before the Courts. The Courts depended on the evidence produced by the police. It became mandatory to investigate crimes and bring forth adequate evidence in support of the prosecution before the courts. There was a time when police used to depend solely on examination of witnesses to collect direct and circumstantial evidence in the detection of crimes. With changing times, the police began to feel the necessity to apply scientific methods for the investigation of crimes. The application of scientific methods in the investigation of crimes culminated in establishing a separate branch of science which is now known as Forensic Science. Sir Arthus Conan Doyle, was the first to apply modern principles of Serology, Finger printing, Fire-arms identification and examination of questioned documents through his fictional character Sherlock Holmes. Holmes feats excited the imagination of an emerging generation of scientists in criminal investigation.

Forensic Science in its broadest definition is the application of science to law. It can also be defined as the application of science to those civil and criminal laws that are enforced by police agencies in a Criminal Justice System. This branch of science developed rapidly with the result so many sub branches emerged. Forensic Medicine, Forensic Toxicology, Forensic Serology, Forensic Ballistics, Forensic Chemistry, Forensic Biology, Forensic Odontology and Forensic Engineering are some of the branches of Forensic Science. Hence it is more apt to call it "Forensic Sciences". Its practice includes Scientists of various disciplines, Physicists, Biologists, Serologists, Firearms experts, Chemists, Toxicologists, Document experts and Forensic Doctors.

We may now examine the present position of the various branches of Forensic Science, as at present.

Forensic Toxicology has undergone rapid development in the detection of even minute quantities of poisons. In the past, many deaths considered to be due to diarrhoea, were actually homicides using Arsenous Oxide, a colourless and odourless poison which produced toxic symptoms closely similar to those of the disease. With the help of sophisticated scientific equipments like Gas-Chromatograph, High Pressure Liquid Chromatograph, Atomic-Absorption Spectra, UV-Visible Spectrophotometer, Polarography, Ion selective electrodes and Fluorescence spectroscope and techniques like Thin Layer Chromatography, Densitometry, Immuno-electrophoresis, etc., even very minute traces of poisons can be detected

and identified today. Poisons for homicide, suicide and animal poisoning were previously limited to vegetable poisons like Datura, Oleander, Odollam, Opium, Madar, Aconite and Nuxvomica, Inorganic salts like Arsenic Oxide, Copper Sulphate, Cyanides, and acids like carbolic acid, Oxalic acid, Hydrocyanic acid Nitric acid and Sulphuric acid. However, the list of poisons today includes modern synthetic Insecticides containing organophosphorus compounds, Organo chloro compounds, Carbamates, Rodenticides like Zinc phosphide, modern synthetic drugs like Barbiturates, Antihistamines, Sulpha drugs, Amphetamines, Phenyl butazones, Chlordiazepoxide and Phenothiazine derivatives. Abuse of Narcotic drugs like opium and its alkaloids, Pethidine, Heroin, ganja, Charas, and LSD, have also gone up considerably, Death due to liquor adulterated with methyl alcohol is a serious problem throughout India, especially in Kerala. Examination of blood and urine of the suspected persons and those involved in traffic accidents for the detection and estimation of alcohol content to assess the level of intoxication also form an important part of Toxicological work. Physico-chemical methods for detection, micro analysis and estimation of all the above category of poisons have been developed using latest Instrumentation techniques. Today, no one can deceive the Forensic Toxicologist by committing homicide with poisons which produce symptoms similar to any disease, since Chemical analysis will reveal the presence of even traces of the poison ingested into the body of the victim : Forensic Toxicology, today can give definite opinion as to whether a person died due to burns or was murdered and then burnt, by estimating the Carbon monoxide level in the blood. In drowning cases, the Forensic Toxicologist can give definite opinion as to whether the victim died due to drowning or was drowned after committing murder or homicide. The Diatoms test in the sternum of the deceased and in the sample of water from the well or pond can reveal the truth. The visceral examination for presence of any other poison is also required in such cases. The Forensic Toxicologist can give definite opinion as to whether a person died due to ingestion of poison or was murdered and then poison was introduced into his stomach by Toxicological analysis of the viscera consisting of Stomach, Intestine, Liver, Kidney, Blood and Urine, The foul play, if any, involved in a death can be brought out by the Forensic Toxicologist with certainty. The Forensic Surgeons play a vital role in unraveling the mystery behind every unnatural death by performing the autopsy on the deceased. They give the final word as to the cause of death after weighing the post-mortem findings and the report of the Forensic Toxicologist.

Forensic Serology is a recent development; I would like the reader to recall to memory the famous painting of Raja Ravi Varma depicting Sage Viswamithra turning a blind eye and a deaf ear to Menaka who was flourishing a child in her hands! From time immemorial, we have heard of men who found it convenient to disown their offsprings begotten through illegitimate relationship. There are also jealous and suspicious husbands who doubt the legitimacy of the children born to them by

their wives. Here women are at a disadvantage to prove the fatherhood of the children. Today, Forensic Scientists, the world over, have come to their rescue. Solving the riddle with the help of Forensic Serology involves not only grouping of blood by A B O typing, but also applying MN, Rh, and Kid groups, Serum heptoglobin typing by starch gel electrophoresis, serum Gc grouping by Immuno electrophoresis, HLA grouping by microlymphocy to toxicity tests and DNA finger printing. DNA finger printing is the most powerful tool which gives confirmatory results to furnish the final opinion in such disputes. Adding all these, the proportion of one's blood group is one in more than thousand million (or five billion) among the population of a country. Paternity testing is a consolidated application of so many techniques of genetic studies. The Forensic Biologists and Serologists can today identify the parents of a child with absolute certainty. In addition to this important work, the Forensic Serologist identifies blood stains, finds its origin, finds the blood group of the victim and compares with that of the stains found in the weapons used to commit the crime, those found in the place of commission of the Crime. In sexual offence cases, the Forensic Serologists have to detect and identify the seminal stains and if possible will have to find the group to which the person belongs if the accused is a secretor. Examination of saliva in cigarette stubs found at the scene of crime also helps to fix the criminal. The examination of hairs and fibers found at the scene of crime give valuable information about the perpetrator of the crime. Today Forensic Biology and Serology have developed to such an extent that a drop of blood reveals the identity of the criminal.

Laser, the wonder invention of modern science ha srevolutionized the whole realm of physical analysis. It has become the pride of Forensic Chemistry today. The new equipment "Laser-microspectral analyser" is applied for studies of the composition of any metal by non-destructive methods. Laser spectral micro analysis offers greater possibilities for examination of tiny fragments of glass, metal alloy, paint etc. found in a scene of crime. Very minute fragments of such materials found on the burglar's clothes or victim's body can also be subjected to thorough analysis and comparison. The use of laser for detection of latent fingerprints has already become instrumental in criminal investigations and it can be anticipated to develop into a valuable tool in Forensic Science. Prints as old as 10 years have been detected by laser techniques. Holography can be considered as the most recent effort for application of laser to crime detection. A foot print on the earth or a dirty foot print on the floor could be easily detected and recorded. But a relatively clean shoe on a carpet generally leaves a nearly invisible trace print that disappears quickly. The laser beam is able to produce a special kind of photograph called the holograme which is three dimensional in character and can detect even such minute prints. This foot print system by laser can also determine approximately when the impression was made.

Many more applications of laser of problems of Crime detection can be expected in future.

The Forensic Chemist has to analyse anything under the sun which is involved in Crime. Adulteration of Cement and Fertilizers, misbranded Inks, spurious gold ornaments, Gold cleaning solution used fraudulently to dissolve pure gold, examination of explosives from the common gun powder to the most modern RDX used by human bombs, Kerosene, diesel and other petroleum products, edible oils, milk powder, Jaggery, liquors including Foreign Liquor and other articles involved in various crimes including Economic offences-all these are referred to the Chemical Examiner for his expert opinion. Forensic Chemistry plays a very important role in giving valuable information to the courts in deciding the cases before them. Identification of Narcotic drugs like opium, Morphine, The baine, Brown sugar, Ganja, Charas, Cocaine, etc., also forms part of the work of Forensic Chemist.

The Document Examiner in the Forensic Science Laboratory identifies the erasures, site of erasures, and also does the decipherment and restoration of erased ink writing, pencil writings and erased type-writing. The methods depend mostly on photographic intensification of partially erased matters. Controlled lighting and Infra-red or ultraviolet photography also improves the results. Restoration or decipherment involves great deal of experimenting and time. The earlier such examinations are done, the better will be the results.

Today, the branch of Forensic Ballistics is fully developed and can give definite expert opinion on the identification of fire arms like bullets, cartridge cases, pellets, wads etc., to establish the origin, caliber, make, model etc. In addition to this, examination of propellant residues, bullet marks on the body of the deceased/injured, on clothes or on other targets to determine the range of firing, direction of firing etc., are also done by the Forensic Scientists in the Ballistics Division. They also carryout the examination of factory make fire-arms to determine the original inscriptions and to establish the ownership. Examination of countrymade fire-arms, ammunition propellants etc., for comparison with similar materials from different sources also form part of the Ballistic experts work.

It can thus be seen that, Science has become the most powerful tool in the hands of Investigators. The evidence adduced by them has become very valuable to the courts. Here is Science in pursuit of truth to dispense Justice. ■

[Dr. A. Krishnamoorthy, armed with Post-Graduate and Doctorate degrees in Chemistry and additionally a law Degree, is currently Chief Chemical Examiner to the Government of Kerala-carrying out investigations in Forensic Sciences to discover the truth and assist the Judicatory in dispensing Justice.]

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THIRUVANANTHAPURAM DIVISION

Social Progress through Science & Technology
- A KERALA EXPERIENCE

Shri. V. GOPALAKRISHNAN NAIR

Science is systematised knowledge. Knowledge is power. Power correctly oriented and properly applied, leads to progress in all positive spheres of human activity.

In our times, in the present world, science and technology have become inseparable from man's every day life. Advances in science and technology (S & T for short) have not only resulted in mind-boggling material progress, but they have also served as a catalyst for socio-economic progress as well. It is in this latter context that S & T assume a pivotal role in all planning in developing countries.

Fortunately for our country, the importance of S & T was fully realised and was adequately taken into consideration in national planning by our great leaders like Pandit Jawaharlal Nehru. India has made significant advances in Science and Technology in the past 47 years after achieving independence. We now have a hard core of heavy industries, a chain of national laboratories a network of advanced scientific research-cum-teaching centres like the IITs and the IISc, Bangalore, a large number of universities, numerous public sector and private sector Science and Technology factories and undertakings and so on. Further discussion of the national S & T Scenario is beyond the scope of this article, which will be confined to the State S & T activities.

State Level S & T Activities

In addition to the national plans and activities of the Government of India, it was wisely decided sometime ago to have state level S & T activities. State Committees/Councils of S & T were accordingly conceived. The target of these S & T Committees/Councils were to keep a close watch on S & T activities relevant to the State, besides joining the main stream of national efforts.

The development of Science & Technology in Kerala has been largely guided by the Scientific Policy Resolution (SPR) of Government of India (1958) and the Policy Resolution on Science & Technology adopted by the Government of Kerala in 1977.

The Kerala State Committee on Science and Technology is the first State Committee to be constituted in the country on the model of National Committee on Science & Technology (1972). Later (1984) the Committee was reconstituted as Science, Technology and Environment Committee (STEC). In 1987, a separate Department of Science & Technology and Environment (STED) was constituted to increase the operational efficiency of STEC. The Committee is charged with the responsibility of constantly reviewing

the Scientific and Technological Policies in relation to the objectives of the successive Five year Plans and with the task of promoting to a justifiable level, the autonomy of the R & D institutions established under the State's S & T umbrella.

The important functions of the Committee are :

1. To advice Government on how to employ Science & Technology as an effective instrument for social and economic change.
2. To Identify and eliminate the existing bottlenecks of development by selecting and employing appropriate technology for industrialisation in the corporate sector.
3. To foster, promote and sustain a spirit of scientific enquiry and innovate entrepreneurship by properly planning and coordinating all activities in science, engineering and technology in the state in all its aspects.
4. To plan for quicker acquisition and wider dissemination of scientific and technological knowledge for the improvement of traditional industries.
5. To initiate and encourage planned programmes to train scientists and technologists to handle special problems in agriculture, industry and allied fields.
6. To monitor, guide and coordinate research activities.
7. To identify areas for application of Science & Technology Plan relevant to the development needs of the State.
9. To advise Government on all environment issues especially water and air pollution control, wildlife conservation, creation of Environmental awareness through education, dissemination of information relating to environment aspects, research and field action through specific projects, clearing of industrial and other developmental projects from the environmental angle.
10. To undertake such other functions as may be entrusted to it by the Government from time to time.

R & D Centres

The Government in the process of broadening the S & T set up in the State established a series of autonomous scientific institutions in different subject areas of S & T aimed at R & D applications, provision of service and diffusion and transfer of scientific knowledge.

The following are the R & D Centres now remaining under STEC Umbrella :

1. Kerala Forest Research Institute (KFRI), Peechi, Thrissur.
2. Center for Water Resources Development and Management (CWRDM), Kozhikode.
3. Centre for Earth Science Studies (CESS), Thiruvananthapuram.
4. Tropical Botanic Garden and Research Institute (TBGRI), Thiruvananthapuram.
5. National Transporation Planning and Research Centre (NATPAC), Thiruvananthapuram.
6. Agency for Non Conventional Energy and Rural Technology (ANERT), Thiruvananthapuram.

Centre for Development Studies (CDS), Sree Chitra Thirunal Institute of Medical Science & Technology, and Electronics Research and Development Centre were later taken over by Planning Department, Government of Kerala, Department of Science & Technology, Government of India respectively as centres of excellence.

STEC provides partial financial assistance to Institutions like Regional Research Laboratory, Thiruvananthapuram; Centre for Mathematical Science, Thiruvananthapuram, Lal Bhadur Sastri Engineering Research and Consultantcy Centre, Thiruvananthapuram; Integrated Rural Technology Centre, Palakkad; Rajiv Gandhi Centre for Development of Science & Technology, Thiruvananthapuram; Centre for Informations Research and Advancement (CIRA) an embedded centre under ER & DC, Kerala Statistical Institute (Thiruvananthapuram) etc.

For the effective implementation of the Policies of the State Government especially in the area of S & T utilisation, the R & D Centres have been of great help. Many of the centres have blossomed into centres of excellence and were able to attract substantial funds from outside agencies either through research projects or through consultative services.

Research Promotion

STEC promotes research, BOTH BASIC AND DEVELOPMENT-ORIENTED, through Universities, R & D Centres, Central Government Laboratories, Voluntary Agencies etc.

Financial support under the Scientific Research Fund Scheme (SRF) which became operational since 1977 provides assistance to the tune of Rs. 20 laksh per year for various project. The maximum financial assistance per project per year is Rs. 25.000. Under this scheme assistance will be provided for a maximum of 3 years for a project. Committee has adopted a fool proof vetting method to screen the projects. Through this scheme committee could attract a number of institutions through out the State to take up research projects and this could change the atmosphere of such institutions especially in colleges.

Along with that the committee encourage STUDENT PROJECTS. Projects are sanctioned to the students of professional colleges and post graduate institutions under the guidance of their teacher mostly in the identified thrust areas. The maximum financial assistance given to such projects is Rs. 5,000

STEC also initiated CO-ORDINATED RESEARCH PROGRAMMES with multi disciplinary, multi institutional participation.

AWARDS

STEC has introduced a scheme for encouraging YOUNG SCIENTISTS by instituting CASH AWARDS of Rs.5,000 each in various disciplines. the award is based on the basis of the papers presented at the Kerala Science Congress. Each award carries besides Rs. 5,000 a research fellowship of Rs. 10,000 per year for 2 years, for continuing their work.

Another award called Dr. S.VASUDEV MEDAL was instituted for the best STEC funded SRF Project completed during each calender year.

FELLOWSHIPS

The Research Fellowship Scheme facilitates Fellowships/Associateships for Retired Scientists Technologists Doctorate holders and post graduate professionals and those who are awaiting doctorates after completing research. The fellowhips help in utilising the talent of young scientists as well as experienced retired scientists

TRAVEL SUPPORT

In order to increase the quality of research, interaction among scientists is a must. Our scientists are not getting enough facilities for such interaction especially chances to participate in conferences/seminars of international nature. To help the scientists to attend and present research papers in international conferences, travel grants are provided by STEC At present STEC could provide maximum of Rs.5,000 as per the scheme. But this token assistance will help them to attract funds from other agencies. STEC also give financial assistance to CONDUCTSEMINAR/WORKSHOPS/TRAINING PROGRAMMES etc., as they are forum for interaction among scientists. At times STEC itself organises national and international seminars, workshops relevant to the development issues of Kerala and cosponsors similar ventures Recently STEC introduced another scheme CONTINUING EDUCATION PROGRAMME which will provide new insight into the recent advances in various disciplines for those who are already engaged. Under the support scheme for innovative approaches in S & T assistance is given in refining and propagating new inventions and ideas.

KERALA SCIENCE CONGRESS

The STEC has been organising an annual meeting of research scientists called Kerala Science Congress since 1989. The objective of the congress is to achieve an effective interaction among academic and research communities to review the present status of R & D efforts in Kerala and to identify integrated and coordinated research programmes with a view to optimally utilising Keralas natural resources and to discuss the problems that stand in the way of transfer and implementation of R & D efforts at grass root level particularly in the sectors such as agriculture, fisheries health housing industries etc. The Kerala Science Congress has received national attraction and is a unique event conducted by STEC

DEVELOPMENT-RESEARCH COORDINATION

It is widely accepted that the S & T activities are to be largely directed to fulfill the necessities of common man. The STEC is therefore charged with the task of identifying thrust areas in the various sectors as well as encourage and initiate demonstration projects on the areas of non convention energy rural technology low cost housing horticulture etc. with the intention of creating upgradation of skills ad creation of employment especially among the weaker sections These activities are mainly centered upon the R & D under STEC

Some of the activities undertaken are:

KFRI has evolved a technology for utilising the otherwise wasted RUBBER WOOD after treatment for construction

purposes. They have also developed technologies for fast propagation of bamboos and reeds which are the main stay of livelihood for several lakhs of traditional workers. Institute also gives training to carpenters in utilising rubber wood

TBGRI has established a medicinal garden and developed TISSUE CULTURE technique for propagation of economically useful ornamental flowers and rare endangered MEDICINAL PLANTS They are also giving training programmes for women in orchid cultivation

The ANERT is conducting field demonstration and implementation of rural technologies and non conventional energy projects. It is vigorously propagating the National Award for installing IMPROVED CHULHAS for two successive years The MICROHYDEL SCHEMES at pookot and sugandhagiri were commissioned a few months back. These were initiated by ANERT

CESS has undertaken a very important programme of preparing panchyat level mapping with the assistance of STEC DST and participation of Panchayats voluntary agencies etc. CESS is also conducting studies on wind mapping wave power sea erosion coastal pollution etc.

CWRDM has evolved drip irrigation suitable for a number of crops in Kerala and is now practised extensively This institute has already transferred technologies in watershed agriculture, biogas production from aquatic weeds, construction of sub surface checkdams etc An irrigation Management Training Institute is functioning under CWRDM which gives training to irrigation department officials.

The NATPAC has been giving yeomen service in the areas of traffic planning identification of accident prone locations planning or rural roads, road safety, low cost transport modes, inland navigation and the like. Their services are being and more by agencies even outside the State and the Centre used more one has been recognised as a unique of its kind in the country

The concept of OPEN HOUSE in major scientific institutions tried out by the STEC have proved to be extremely successful and effective in conveying the major activities of these centres for the students, unattain able and mysterious.

ENVIRONMENT AND ECOLOGY PROGRAMMES

The Environment and Ecology Programmes are coordinated by the Environment consultative committee set up under STEC. The committee encourages research on various aspects of ecology and environment On the basis of the request from Dept. of Envt. Govt. of India and various government departments STEC with the help of expert committees prepares reports on various Environmental issues and submits to the concerned agencies. A drought survey was conducted with the help of voluntry agencies on water requirement, availability and amount of deficit, distribution of wells, ponds and other decentralised sources of water in the rural areas.

HUMAN RESOURCE DEVELOPMENT

STEC has various programmes aiming at the development of human resources. Some of the schemes are training

apprenticeship, travel grant, science education, in service training. etc. The Science and Technology Entrepreneurship Development (STED) project functioning in Kozhikode District. could bring our project profiles for Kozhikode Dist. which are being implemented. Workshop camps are orgainsed in Engineering colleges and other Technical institutions for entrepreneurship development

The Committee maintains good relations with active voluntary organisations. The committee has orgainsed several programmes for sensitising the various voluntry groups for taking up S&T projects for the upliftment of the weaker sections and in general for rural development jointly with the Department of Science & Technology.

SCIENCE POPULARISATION

Since the fruits of scientific and technological endeavours should reach the common man, science popularisation becomes very important. STEC functions as a coordinating agency for the Science popularisation activities orgainsed and conducted by other Governmental departments, agencies ad voluntary agencies. An S&T communication cell is functioning under STEC and is involved in the publication of S&T news bulletin in Malayalam, Newsletter reference books directories etc. For encouraging science writing in Malayalam S&T Award Scheme is implemented for popular science, Children science and indepth Studies in Science. For encouraging science journalism S & T Award of for SCIENCE JOURNALISM also is instituted. Campaigns like NATIONAL SCIENCE DAY WORLD EARTH DAY, WORLD ENVIRONMENTAL DAY, NATIONAL ENVIRONMENTAL AWARENESS CAMPAIGN etc are celebrated with the participation of voluntry agencies and R & D institutions The Audio visual unit under the cell interacts with schools and colleges and in future, it is planned to reach the public regularly on selected items of exposure

From the activities mentioned above one can understand that within a short time span the State Committee on Science Technology and Environment could formulate a basic infrastructure for the proper application of S & T in various fields STEC could create a research culture in many of the institutions especially in colleges where the man power was otherwise under-utilised. STEC also could keep a better interaction with other development departments and could suggest necessary S & T input to solve the bottlenecks in many of their developmenal projects. But a lot of work remains to be done. STEC is trying to make use of S & T as a tool for development of this state and the country in particular This can be done only by hard work and cooperation of the scientific community of Kerala and support from the Government as well as the public at large. ■

(Shri. V. Gopalakrishnan Nair, generally known as Chunakkara Gopalakrishnan, is a fund of knowledge, a good speaker and a popular science writer. He is working as Scientific officer in the Science, Technology and Environment Department)

An appeal to the people of Kerala

Drinking water is becoming scarcer day by day!

The problem becomes all the more acute and complex when the normal rainfalls fail. Providing safe drinking water through piped water systems takes a lot of effort and plenty of money.

Experiences in the past has proved beyond any doubt that if the community takes an active role in protecting water sources and water, it is easy to overcome any grave situation arising out of failure of rains.

Socio-Economic Units-Kerala; working together with Kerala Water Authority, panchayats, various governmental and non-governmental agencies and the people, helps people to improve the quality of their life through water supply, environmental sanitation and hygiene promotion initiatives. Community involvement, Organisation, and management are the main thrust areas of Socio Economic Units.

Let us tackle impending water, health and sanitation problems together.

AVOID WASTAGE OF WATER
PROTECT AND PRESERVE EVERY DROP OF WATER

- Water is life

You'll need it, everybody will need it!

MAINTAIN CLEAN SURROUNDINGS
MAINTAIN PERSONAL HYGIENE

It's your need and other's too!

SOCIO-ECONOMIC UNITS, KERALA

AN INTEGRATED WATER SUPPLY &
ENVIRONMENTAL SANITATION PROGRAMME

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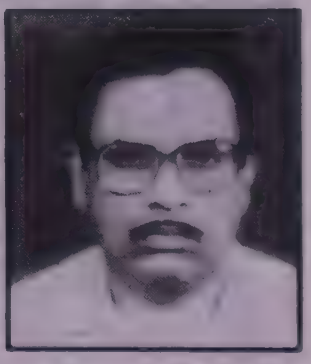
Joint Secretary



Dr. C. NILAKANTA DHAS

Treasurer

Shri. A. THOMAS

Co-ordinator

Dr. B. MAHILAMANI

Health Scenario in Kerala

STATE HEALTH EDUCATION BUREAU

Kerala state is unique for its Scenic beauty high literacy cleanliness rich cultural heritage and political consciousness. The state has also a long tradition of medical and health care system. Historically the princely rulers of the state made a begining to provide infrastructural facilities for a primary health care delivery system which after the states reorganization has reached a fairly high level of standard and soundness. The availability of facilities of primary health care their accessibility the very high degree of awareness and acceptability among the people have made the kerala model an almost perfect one calling for very minor changes. What is needed at present is to sustain these active participation and co-operation of the private sector which has played a decisive role in the health sector and efforts of the voluntary organisation and the people at large the task ahead though a challenge is not formidable

The level of achievement in the implementation of the various national programmes for control, eradication of killer diseases and also of family welfare programme including immunisation programme and maternal and child health activities has helped the state to reduce the mortality rates especially that of the mothers and infants and also fertility rates and to enhance the life expectancy especially that of females to over 70 years Today the infant mortality rate is as low

as 13 and the maternal mortality rate below I are comparable to those of some of the developed countries Also the pre school child mortality rate and the crude death rate is quite low By reaching a couple protection rate of over 63, the birth rate could be reduced to as low as 17 by 1993, the lowest among all the major states in the country. Thus under all major indicators the state could achieve what the country has targeted for "Health for all by 2000 AD". ■

KERALA RELATIVE TO INDIA (1991 CENSUS)

		Kerala		*India*
Area	(sq : Km)	38863	-	3065027
Population	Total	29098518	-	846302688
	Male	14288995	-	439230458
	Female	14809523	-	407072230
Percentage of Rural				
	Population to	89.81	-	74.27
	Total population			
Decennial growth rate		14.32	-	23.85
Density of Population				
	(per sq:Km)	749	-	267
Sex ratio	(Female per 1000 male)	1036	-	0927
Literacy rate	Total	89.81	-	52.21
	(%age) Male	93.62	-	64.13
	Female	86.17	-	39.29
Percentage of Schedule case SC		9.22	-	16.48
Population ST		1.10	-	23.29
Age at Marriage 1991 census				
	Male	25.84	-	23.29
	Female	22.1	-	18.33
Per Capita income 1991-92		5065	-	5583
	Current Price	Rs. 2023		

HEALTH STATISTICS
KERALA 1995

KERALA AT A GLANCE

Area (Sq:Km)	-	38863

ADMINISTRATIVE STRUCTURE

Location between 8 18	-	12.48
Districts	-	14
Taluks	-	61
Panchayath	-	991
Blocks	-	152
No of Revenue Villages	-	1452
No of Towns	-	197
Parliamentary Constituencies	-	20
No of Municipal Corporation	-	3
No of Municipalities	-	54
Total Population	-	290.98518
Female	-	148.09523
Male	-	142.88995
Growth rate	-	14.32%
Density of Population	-	749 lakhs
Sex ratio per 1000 males	-	1036

KERALA IMPORTANT HEALTH PARAMETERS PRESENT POSITION

Birth Rate	17
Death Rate	6
Infant mortality Rate	13
Maternal Mortality Rate	13
Expectation of life at birth (in years of age) male	69
Female	71
Couple protection Rate	63

NATIONAL TB CONTROL PROGRAMME (1994 - 95)

	Target	Achievement	Percentage of Achievement
New Cases detection	50200	32312	64.4
New tester to be done	107520	59315	5502

(Prepared by Shri. N. Ravindran Nair, Senior Editor, Directorate of Health Services, Kerala - a person who is through with all health programmes and statistics)

Excerpts from the World Health Report 1995

Globally about 51 million people of all ages died in 1993, about three-quarters of them adults. Some 39 million deaths took place in the developing world and about 12 million in the developed. Poor countries had three times more deaths than rich ones.

Communicable diseases such as tuberculosis and respiratory infections as well as maternal, prenatal and neonatal conditions account for about 20 million, or about 40% of the 51 million global deaths; and 99% of these occur in the developing world.

Noncommunicable diseases such as cancer and heart disease account for about 19 million deaths, or 36% of the global total, divided more or less equally between the developing and the developed world. The great majority of such deaths are among adults.

External causes such as accidents and violence account for about 4 million deaths, or some 8% of total, again mostly among adults. Developing countries have nearly four times the number of deaths from these as the developed world. Other and unknown causes account for the remaining 16% of deaths worldwide.

Maternal complications claim another 508000 lives a year. Of the 20 million deaths due to communicable diseases, more than 16 million, or about 80%, are due to infectious and parasitic diseases. Tuberculosis kills about 3 million people, malaria around 2 million and hepatitis B possibly 1 million.

Among the major communicable disease, tuberculosis was responsible for more than 5% of global total deaths - over 7000 a day - and it is estimated that there will be 8.8 million new cases in 1995 - equal to more than 1000 new cases every hour of every day. Drug treatment, in most cases costing as little as US$ 13-30 per person for a six-month course, can cure people, but providing the drugs to those who need them, and ensuring that patients take them for the required period, is a major public health challenge.

Meanwhile the lethal relationship of tuberculosis with HIV is making the death toll many times worse. During the next 10 years in Asia alone it is estimated that tuberculosis and AIDS together will kill more people than the entire populations of the cities of Singapore, Beijing, Yokohama and Tokyo combined.

Malaria, directly or in association with acute respiratory infections and anaemia, causes around 2 million deaths

a year, the vast majority among young children, and some 400 million cases annually. Globally more than 2 billion people are threatened. The estimated direct and indirect cost of the disease in Africa alone is expected to reach US$ 1.8 billion by 1995.

Cholera has become endemic in many countries in Africa, Asia and Latin America. In 1993 there were 377 000 new cases reported and only 6 800 deaths. Nevertheless, the number of cases and deaths remain at far higher levels than those reported earlier.

★★★

HIV and AIDS continue to spread relentlessly. WHO estimates that in 1994 HIV prevalence among adults worldwide was over 13 million. Some 6,000 people are becoming infected each day. In parts of Africa and Asia the virus is advancing rapidly. In southern and south-eastern Asia HIV infections were estimated at 2.5 million - a million more than in 1993.

★★★

Noncommunicable disease such as those of the circulatory system account for 10 million deaths globally, with more than 5 million due to heart disease and another 4 million due to crebrovascular conditions (such a stroke). These and other noncommunicable diseases that primarily affect adults are also emerging as a major cause of death in the developing world. Although until recently heart disease and stroke were perceived as problems of the developed countries, about 44% of total deaths from these causes now occur in the developing world. Cancer accounts for 6 million or 12% of deaths globally - with the majority of them, 58%, in the developing world.

★★★

Smoking is emerging as the world's largest single preventable cause of illness and death. WHO estimates that there are about 1.1 billion smokers in the world today. About 800 million are in the developing world - nearly three times as many as in developed countries. Smoking already kills an average of 3 million adults a year worldwide. If current trends continue, this figure is expected to reach 10 million by the year 2020.

★★★

(Excerpts from the IUHPE - SEARB Ackd with Thanks)

W.H.O and the World Bank : Collaboration for Health Development

Presently, WHO and the World Bank are collaborating in several programme areas which have had a substantial impact on people's health. These include training and research in tropical diseases, onchocerciasis control, research development and research training in human reproduction, control of acute respiratory infections and HIV/AIDS.

In India

In the 1990's the World Bank moved into health development programmes in India. A number of national disease control programmes were started. These include :

The National Leprosy Eradication Programme, a major public health programme, to which the World Bank provided about US$ 100 million. In 1994 India had an estimated 1.1 million leprosy cases. Today that figure has been greatly reduced to 0.8 million cases. The basic strategy is to extend the MDT (multi-drug therapy) to all leprosy patients.

The National Programme for the Control of Blindness (US$ 130 million) through which it is expected that 11 million sight-restoring cataract operations will be carried out. This will be accomplished through strengthening the service capacities, technological advancement, and improving the quality of training and service delivery.

Tuberculosis, from which it is estimated that 14 million people in India suffer and 0.5 million deaths occur annually. The rising number of HIV/AIDS infections is also increasing the risk of tuberculosis. India started a National Tuberculosis Programme which has cost US$ 1.9 million in its pilot phase.

The HIV/AIDS Programme focuses on the prevention of HIV transmission. It includes blood safety; control of sexually transmitted diseases; civilian and clinical management; information, education and communication (IEC); social mobilization; and reduction of impact. The total amount of the project is estimated at US$ 84 million. ■

(Extracted from IUHPE - SEARB
Acknowledged with thanks)

If I can stop one heart from breaking I shall not live in vain If I can ease one life that's aching Or cool one pain Or help one fainting robin Unto his nest again I shall not live in vain.

(Emily Dickinson)

Health Risks of Smoking

Around half of all regular long-term cigarette smokers will ultimately be killed by their habit, according to the most comprehensive report on deaths from tobacco ever published.

Worldwide one person dies every ten seconds as a result of smoking, the report says. It finds that smoking poses a far greater health hazard than was formerly supposed.

The report - "Mortality From Smoking in Developed Countries 1950-2000" - was compiled jointly by scientists at the American Cancer Society in Atlanta, the World Health Organization (WHO) in Geneva, and the Imperial Cancer Research fund in London.

"Everybody knows smoking is dangerous, but still many people greatly underestimate the dangers, or mistakenly think many other things are of comparable importance", says WHO's Dr. Alan Lopez, one of the authors of the report.

Death from tobacco is the "biggest epidemic" that the WHo is faced with, according to Lopez. Smoking is already killing around three million people a year, and the number is increasing, according to the study.

"Between 1950 and 2000, tobacco will have killed about 60 million people in developed countries alone". Lopez says.

The report finds that a quarter of them will die during middle age, losing an average of about 20-25 years of life.

So far the large majority of those killed by tobacco have been males in developed countries, it says. But the number of women in developed countries and males in developing countries dying from the effect of smoking are rising as more of them take up to this habit.

The report's evidence on the United States and United Kingdom indicated that :

- in the United States, one person dies every minute as a result of smoking.
- Half of all smokers who acquire the habit as teenagers and continue smoking regularly, will eventually be killed by tobacco.
- Most of those killed by tobacco were not particularly "heavy" smokers, but most did start in their teenage years.
- Stopping smoking works. Even in middle age, stopping before cancer or some other serious disease arises sharply reduces the risk of death from tobacco related causes in later years.
- Tobacco now causes almost one-third of all U.S. female deaths in middle age.
- The United States has only 5 per cent of the world's female, but it has 50 per cent of the world's female deaths from smoking. ■

Science update, March-April 1995

we wish to express our sincere thanks
to those who contributed articles,
and to those who helped us with advertisements;
we are also thankful
to artist shri. john punalal for the art work and layout,
and m/s. aksahara graphix for printing
the souvenir promptly and neatly.

– souvenir committee

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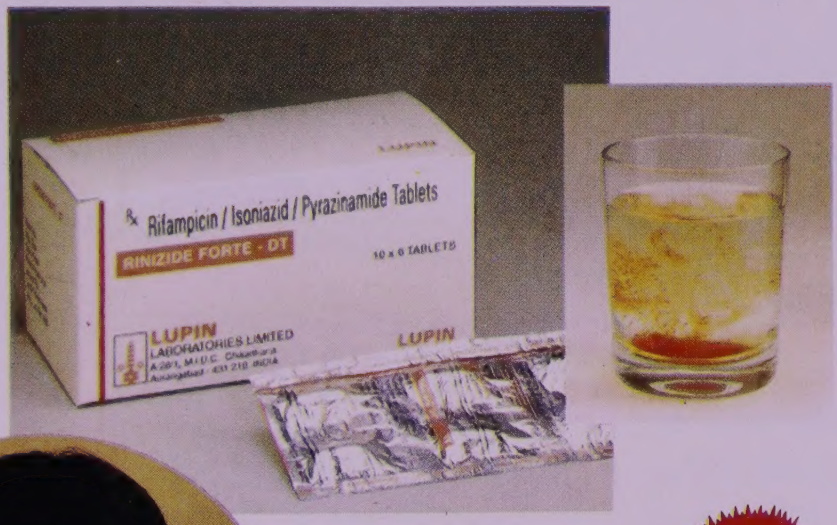

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IN

CHILDHOOD TUBERCULOSIS

TB Chemotherapy Made Simple

Initial Intensive Phase** (2 months)

Rimactazid*+Z

(Rifampicin 450 mg + Isoniazid 300 mg + Pyrazinamide 1500 mg)

The power of 3 drugs in daily dosage blister pack

Continuation Phase (4 months)

Rimactazid*450/300

(Rifampicin 450 mg + Isoniazid 300 mg)

1 tablet once daily (preferably before breakfast)

**** When there is a high level of initial resistance add Ethambutol or Streptomycin, where appropriate, to the initial intensive phase.[1]**

Rimactazid*+Z : Abridged Prescribing Information

Presentation: Each blister pack contains: 1 film coated tablet of 450 mg rifampicin + 300 mg isoniazid, and 2 uncoated scored tablets of 750 mg pyrazinamide. **Indications:** All forms of pulmonary and extrapulmonary tuberculosis. **Dosage:** Contents of one blister pack (1 film coated tablet + 2 uncoated scored tablets) daily for patients upto 50 kg body weight. See full prescribing information. **Contra-Indications:** Known hypersensitivity to rifamycins, INH, or pyrazinamide. Jaundice. Liver damage. **Precautions:** Avoid resumption of therapy after termination of long-term treatment. Liver diseases, low convulsion threshold, undernourishment, gout, diabetes mellitus, pregnancy, lactation: if possible, avoid use of Rimactazid + Z. **Interactions:** reduced efficacy of oral anticoagulants, oral agtidiabetics, digitalis, oral contraceptives, and many other drugs. Adjust dosage of phenytoin when given together with Rimactazid* + Z; avoid concomitant therapy with disulphiram. Perform blood counts and liver function test regularly. In the event of thrombocytopenia, purpura, renal failure, or haemolytic anaemia, treatment should be stopped immediately and never restarted. **Adverse reactions:** Rifampicin: gastro-intestinal disturbances, disorders of hepatic function, isolated cases of jaundice, leucopenia, and eosinophilia. Flu syndrome in connection with intermittent therapy or after temporary interruption of treatment. Rarely: cutaneous manifestations (in isolated cases generalised and severe), thrombocytopenia, purpura, fever, acute renal failure, dyspnoea, haemolytic anaemia. INH: disorders of hepatic function, rarely hepatitis; dose-dependent peripheral neuropathy and occasionally damage to the optic nerve, convulsions or psychoses, blood dyscrasias, rheumatic syndrome, LE-like signs and symptoms, mild CNS syndromes; Pyrazinamide: disorders of hepatic function, fever, rarely yellow atrophy of the liver; aggravation of peptic ulcer; acute gout, arthralgia, hypersensitivity reactions. **Packs:** Boxes of 10 composite packs of 3x3 tablets.

1. Antituberculosis regimens of chemotherapy: Recommendations from the Committee on Treatment of the International Union Against Tuberculosis and Lung Disease: Bull. Int. Union Tuberc. Lung Dis., 1988, 63(2), 60-64.

For the use only of a Registered Medical Practitioner or a Hospital or a Laboratory.

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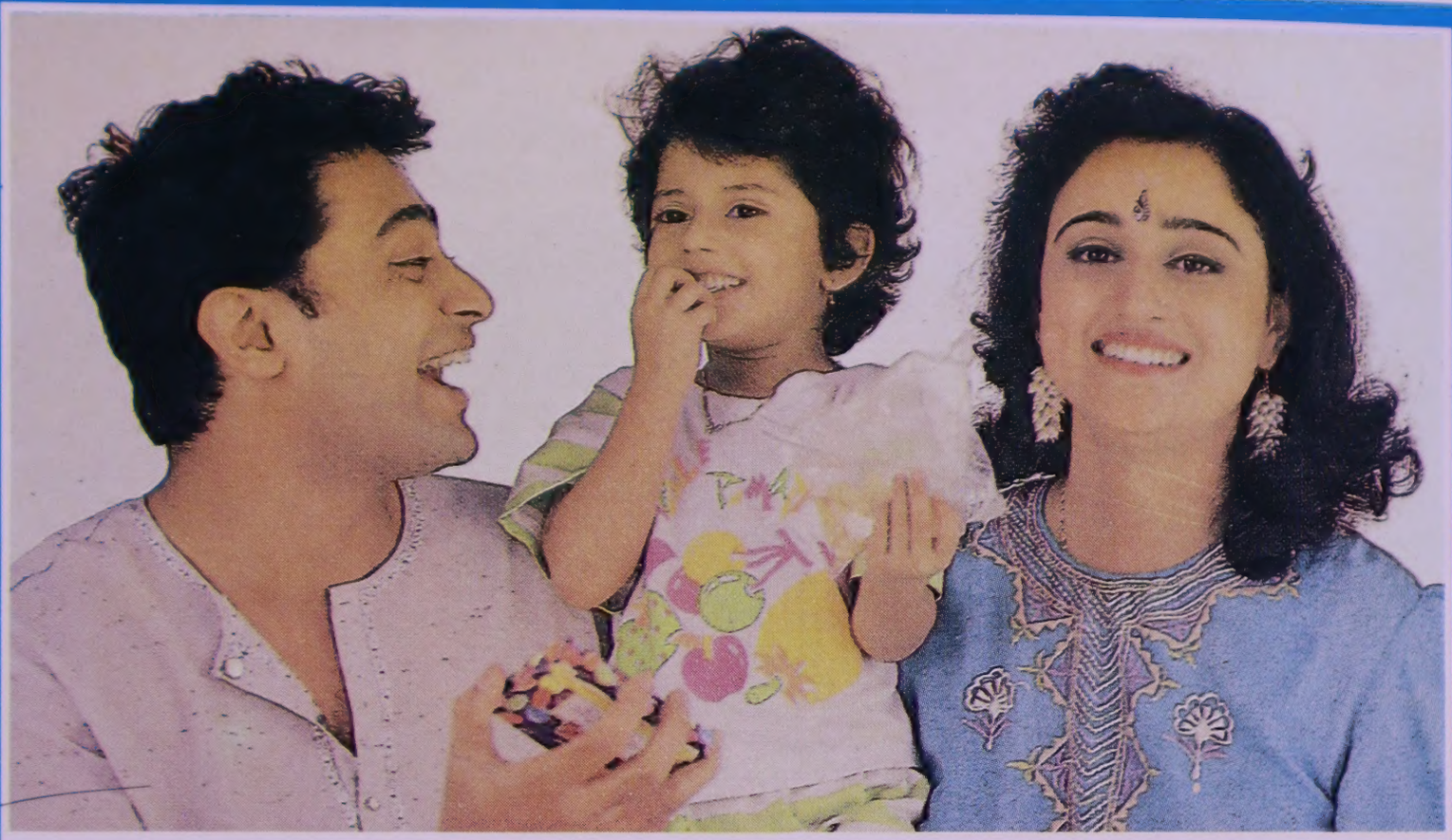

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